

Manufacturers Record

Exponent of America



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Baltimore, Md.
JANUARY 27, 1921

Improved Highways Essential to Nation's Life

The problems of civilization are many. The dangers confronting us as a nation are almost without end. They involve the problems of education in the rural districts, of the religious life of the country places, the maintenance of our farms and the production of foodstuffs adequate for our ever-growing requirements.

There are many problems of politics, of Government, of bolshevism and of safety from all the dangers which threaten this and all other countries. Many of these problems can find a solution only in an abundant supply of foodstuffs produced and sold at a reasonable price, and this is not possible except by the largest development of our agricultural interests and the prosperity of the farmers.

Farm life must be made comfortable and attractive from the economic as well as from the social and religious standpoint. If the cities draw more heavily upon the manhood of the country districts than they have been doing in the past, the agricultural life of the nation will be doomed, and that means ultimate destruction for all.

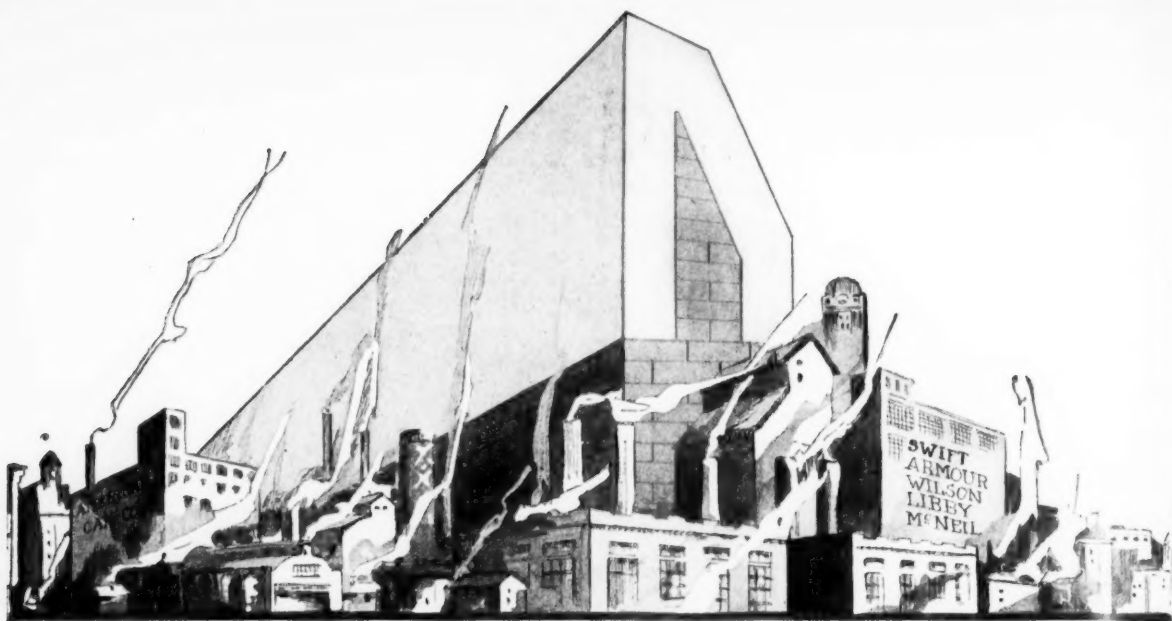
Without improved highways extending far into the country districts, making farm life attractive and social, educational and religious opportunities available to the young and old on the farms, the movement of population toward the cities will continue, the virility of country life will be sapped and every danger which threatens us will be intensified.

Improved highways are absolutely essential to the salvation of this nation.

Bad highways will intensify every danger which confronts us.

Counties, States and the Federal Government alike must unite in a campaign for improved highways broad enough in scope to save the nation from every danger which bad highways would intensify.

For these reasons the Manufacturers Record is devoting much space in this issue to improved highways.

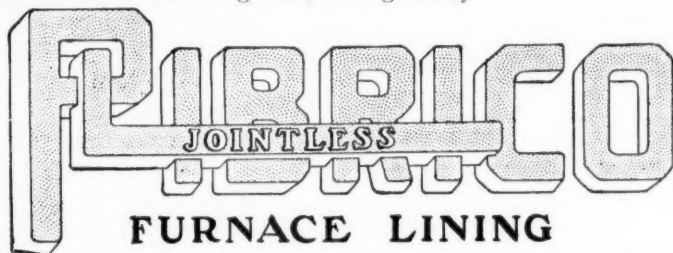


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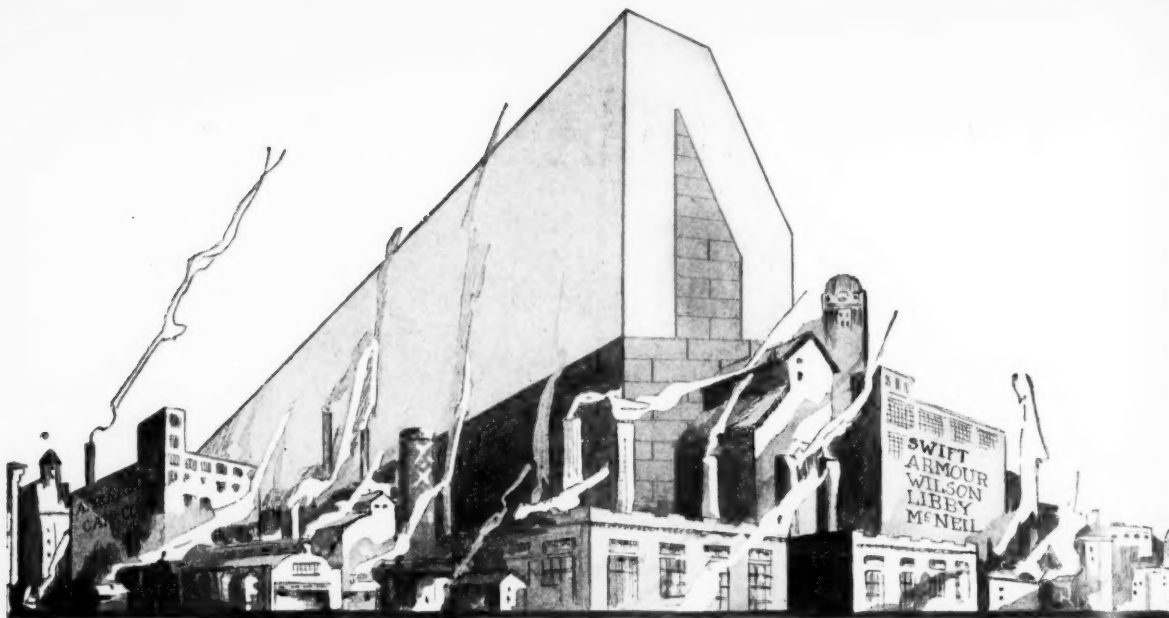
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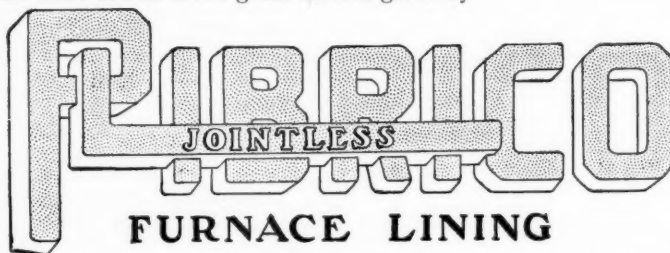


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of the South and Southwest as the Nation's Greatest Material Asset

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WHY COURT FURTHER FINANCIAL DISASTER BY PLAYING INTO HANDS OF INTERNATIONAL BANKERS?

A DISPATCH from New York to the daily papers referring to the probability of the appointment of Governor Harding of the Federal Reserve Board as the head of the one hundred million Export Financing Corporation gives as reasons why Mr. Harding's selection is desirable the following:

"First, because of his intimate knowledge of both domestic and international finance; second, because it is the plan to establish a working directorate for the corporation selected from present Federal Reserve Bank regions, and third, because the corporation will be under the supervision of the Federal Reserve Board and it is felt that Harding's long experience on that board will be a distinct asset to the corporation."

So far as the MANUFACTURERS RECORD is concerned we cannot see that any of these reasons are worthy of consideration. The selection of Governor Harding as president of the new organization would merely strengthen the power of international bankers over the Federal Reserve Board and over the proposed one hundred million company. We do not believe that the international banking interests of this and other countries should in any way whatever be identified with the Federal Reserve Board nor the officers of the Federal Reserve Board have any relation whatever to the control of the operation of the proposed Export Financing Corporation other than those which are required by the law. The tremendous danger to our country is that its entire financial operations will be dominated by international bankers, and the disastrous work of the Federal Reserve Board during the last 12 months is only typical of still more disastrous power which an affiliation such as suggested might bring about. On this point one of the leading bankers of Atlanta,

writing under date of January 21 to the MANUFACTURERS RECORD says: "The MANUFACTURERS RECORD bristles with information showing the operations of the Federal Reserve Board and the Secretary of the Treasury and the erroneous procedures by them. The communication from Arthur Kitson, appearing in the issue of January 6, is exceedingly interesting. He analyzes the financial problem as I see it. I wish this article were issued in circular form and sent to every banker and prominent business man in the country.

"It is most outrageous that the country has been forced to sustain a loss of so many billions which, as I recall, began rapidly following the two communications from Mr. Frank A. Vanderlip and Mr. W. P. G. Harding, chairman of the Federal Reserve Board. It seems that any business man with judgment and vision would realize that what we need is more currency to float the business of the country. Currency is the liquid which moves properties in trade, and the more readily these are moved when the liquid is abundant.

"What we have been pulling for for 50 years in the South has been better prices. When the opportunity was presented 'the fat was thrown in the fire.' Further, we need now to build up confidence and climb the ladder again. It will be slow and tedious. We need encouraging words from the MANUFACTURERS RECORD. We need also to lay aside, as you have intimated, Mr. Houston and Mr. Harding. In this connection I see that Mr. Harding is spoken of as the proposed president of the new hundred million dollar corporation to be organized in Chicago. What do you think of it?"

The MANUFACTURERS RECORD has for 12 months constantly expressed its opinion of Mr. Houston and Mr. Harding as two of the greatest disasters which have ever befallen this country. We are not at all surprised, however, that Mr. Harding has been offered the presidency of the one hundred million dollar corporation which has been organized by bankers. We have expected that he would land in a job of some big banking institution as the natural and inevitable outcome of the work that he has done and we expect to see Secretary Houston abundantly cared for by some institution having vast capital at its command, even though the law will not permit him to step direct from the Treasury Department into a banking house that is a member of the Reserve System.

GOVERNMENT APPOINTMENTS.

THE Senate is quite right in declining to confirm at this time a number of important term appointments. The new Administration has a right to work with executives of its own choosing, and the success of its entire program might easily be jeopardized by the presence in high office of men not in sympathy with the policies the Administration desired to pursue.

This is particularly true in reference to the Shipping Board and the Interstate Commerce Commission. They control the transportation of the nation, at home and abroad. The former has been a continuous humiliation to the nation. It began in friction and scandal, and in scandal and friction it has

lived. It is of extreme importance that this arm of the national service, on the success of which so much depends and which must play so important a part in the operation of the nation's foreign policy, should be under the direction of men who are so immersed in the accomplishment of the task set them that they will have no time for bickering and quarrels. A new Shipping Board is urgently required.

Few will regret that recent appointees to the Interstate Commerce Commission will fail to secure confirmation. There is one member of the Commission, however, whom the new Administration cannot afford to lose. He represents, in the fullest way, the character of citizen most desirable in public office. He is a man of conspicuous attainments in private life, of long practical experience, fired with the zeal for public service, anxious to put his capacities at the service of the Government.

There is nothing spectacular about the work of an Interstate Commerce Commissioner. But it is an office of vast power, to be competently held only by men accustomed to dealing with large questions, men of clear vision and sound judgment. It would be a misfortune to the nation if the services of Mark W. Potter in the Interstate Commerce Commission should be lost. We doubt if a patriotically minded Administration would seriously consider permitting him to leave the Commission.

STOP THE IRISH PROPAGANDA IN THE UNITED STATES.

THERE is a very pronounced effort being made by the Sinn Feiners, who have spread throughout this country, to bring about a spirit of antagonism between Great Britain and the United States. It is a propaganda born of the lower regions. It seeks to involve this country in a bitter hostility to Great Britain in order to help bring about the so-called freedom of Ireland.

Whatever may be the views of American people as to Ireland for or against its effort for independence, good citizens should have nothing whatever to do with the propaganda that is now at work in America. Every movement that is being made in the United States to create hatred to England in order to make this country the ally of Ireland as against England should be spurned by every American.

The people of this country are tired of hyphenated Americans. They want no Irish-Americans, German-Americans, English-Americans, Italian-Americans or any other hyphenated elements. If men and women who come to this country to make it their homes cannot put aside their nationality and become Americans in deed and in spirit, then we want none of them. If they want to uphold Ireland or Germany or Italy or any other country in which they were born, then it is their duty to go back to those countries and make whatever fight they propose to make at home and not seek to embroil America in the hostilities of the Old World.

The Irish propaganda which is filling our newspapers with this effort to create hatred to Great Britain should be suppressed by the law and by popular sentiment. This country should avoid in every way possible everything which would create friction between England and the United States. These two great Anglo-Saxon Christian nations must stand together in saving the world's civilization. Friction between them would be disastrous to the world. The Irish propagandists who are seeking to stir up hatred to England are enemies to the United States and are doing their utmost to injure this country. It is time for the United States to cease to be the home of propaganda for carrying on all of the squabbles and the hatreds of all other countries, and especially must we be on our guard to avoid taking sides with Ireland or swallowing all of the tales which Irish propagandists are spreading throughout this land.

A VISIONARY PLAN FOR CONTROLLING SURPLUS COTTON.

SIR Charles W. Macara, one of the foremost cotton manufacturers of Great Britain and a recognized authority in that industry, believes that a serious situation will arise in the near future in the world's cotton industry if the threatened curtailment of the American cotton acreage is carried out. So vitally important does he regard the matter to the world's interest that he thinks such a disaster to the world's cotton trade can only be averted if the different governments will purchase all surplus cotton now in the world and store it until it may be required. He urges that immediate action should be taken in order to avert such a disaster to the world's cotton industry as would result from a decreased acreage in the South, and he advocates an immediate world cotton conference to consider the situation.

Mr. Macara has very great influence in the world's cotton industry, but for too many years he favored the things which meant lower prices of cotton and his apparent conviction within the last year or two to the belief in higher prices for American cotton came too late to be of much assistance, regardless of all that Sir Charles W. Macara advocates as to the governments of the world buying up all surplus cotton—a proposition not likely to be carried out. Southern cotton growers should curtail their cotton acreage by at least 30 to 50 per cent. It is time for the world's surplus of cotton to be cleaned up, so that it may never again hang over the market and be used by cotton manufacturers to break down prices below cost of production.

Mr. Macara's appeal for the leading countries of the world interested in cotton production or manufacture to unite in buying up all of the cotton now in existence is not a feasible proposition, even though it comes from a man who has been for many years regarded as the foremost cotton authority of Europe and for many years president of the International Cotton Spinners Association. It would be impossible to bring about any immediate concert of action for the purpose of buying up this surplus cotton, and it would be well nigh if not quite impossible to get the governments of the world to agree on a price even fairly satisfactory to the growers. Is he trying to get the governments of the world to finance a scheme which he advocated in 1904 for cotton manufacturers to establish an enormous cotton holding company and which, it was stated at the convention at Zurich, Switzerland, would be used as a club over the producers to force prices down?

However high Mr. Macara may stand as a guiding factor in the economic discussion of cotton questions, we think his advice is impractical and impossible. It would be a vain delusion for the cotton growers of the South to believe that all of their difficulties would be removed by such a movement as this on the part of the world's governments. The safety and the only safety for the cotton growers of the South is to produce their entire supply of foodstuffs and feedstuffs and then and only then put their surplus acreage in cotton, and make sure that this acreage is but little if any more than half of the acreage of recent years.

Mr. Macara's scheme is visionary to the extreme, and if it could be carried out it would be dangerous to the extreme, for it would mean that all of this surplus cotton could at any time be thrown on the market to break down the price of cotton, after encouraging the South to raise a big crop.

We cannot conceive that however high Mr. Macara may stand in the business and financial circles of England any government would seriously consider the proposition. Moreover, even if any government were willing to do so it would be a most dangerous situation viewed from every angle.

Drastic Deflation Means World Repudiation

A GREAT financier tells us that "deflation such as we have been having means world repudiation." We think his diagnosis is accurate. Repudiation means socialism, and socialism means, eventually, anarchy and a relapse into barbarism.

The cloud that encompasses the world today is debt. With prodigal recklessness the accumulated capital of the ages has been squandered and the assets of the future have been mortgaged. Not billions only, but tens and hundreds of billions of new securities have been issued in the last six years. Some of them are for productive enterprise. The most represent no material asset except victory achieved—the right of men hereafter to live in freedom, the privilege of civilization to continue its progress.

The debt is prodigious. It lays a toll on every article of any kind whatsoever produced in the world. No native in the South Seas can dive for pearls without bearing on his back a tax which must be added to the cost of the pearls obtained. No ounce of cotton, no single grain of wheat, can be produced in this whole world today that it is not burdened with mortgage. The things above the earth and on the earth and beneath the earth, all things that are and will be, have fixed on them a levy, and it will stick for generations until the last cent has been paid in settlement of the war cost, direct and indirect.

It is a mere truism to note that there is not now enough gold in the world to represent adequately a background for the security values extant. It is equally certain that there is not enough production in the world to sustain the debt in terms of pre-war prices. This is the more evident if production itself is cut by drastic credit restrictions, which operate to destroy purchasing power.

To illustrate, it is more than doubtful if there is any such thing as surplus production of a basic commodity. We do not think there is enough flax in the world now to meet current needs, nor enough grain, nor enough rubber, nor enough wool, nor enough lumber. There are apparent surpluses in all these commodities solely because purchasing power has broken down. People who need do without. The object of civilization is to enable people to provide themselves with necessities; not to teach them how to do without the things they require and ought to have. The reflex of the apparent general surplus is a drastic cutting down of production everywhere. At the moment when the world most needs maximum production to meet the interest on the vast new debt, as the deflationists have themselves testified again and again, there has been put into operation a policy which was certain to curtail production everywhere, and which has, in fact, cut production to the bone.

There is, therefore, a curtailed production to meet a vastly greater yearly requirement in interest. The charge on what business is done is necessarily greater per unit than it would have been had there been more business. It may be possible, by arbitrary methods, in the face of such a condition, to drive prices down, but there is no authority in the whole wide earth which can, in these circumstances, keep prices down. On the contrary, a severe swing back to higher prices is inevitable unless production is stimulated the world over.

The world's total monetary stock of gold is put at \$7,804,000,000. The total stock of gold, exclusive of that used in commerce, but including all supposed to be hoarded in India and elsewhere, is estimated at \$10,000,000,000. The total

production of gold since the discovery of America is placed at \$17,765,264,207.

The total national debts of the world in 1914 amounted to \$43,889,000,000. In 1920 they amounted to \$297,604,000,000, in terms of normal (pre-war) exchange. During the same period paper currency increased from \$7,527,000,000 to \$81,596,000,000, exclusive of \$34,000,000,000 issued by the Soviet Government. The national debts of Europe have increased from approximately \$32,000,000,000 to \$257,000,000,000 in 1920, and the paper currency from about \$5,000,000,000 in 1914 to \$72,000,000,000 in 1920.

The per cent of gold reserve to notes issued for the chief nations of the world was, in 1914, 66.3. In 1920 it was 9.2. Indeed, it is not really that high, the estimate being arrived at by an average of gold reserve percentages of the 50 leading nations of the earth, which show such countries as Venezuela with gold reserves of 300 per cent, whereas the reserve of Germany is placed at .6 per cent, and that of France at less than 9 per cent.

The Governments of the world owe approximately \$400,000,000,000, at normal exchange, and the interest charge is not less than \$12,000,000,000 annually. At the Brussels Financial Conference it was shown that three out of four of all nations represented were spending in 1920 more than their incomes, and in Europe 11 out of 12 countries admitted that expenditures were greater than current receipts. The total world debt today, therefore, is doubtless somewhat larger than our figures show. So is the interest charge.

We need not discuss the grave question involved in the maintenance of a metallic basis for circulation, and indirectly of debt, when the quantity of gold in existence has ceased to bear any reasonable relationship to the issues of which it is the guarantor. Most nations frankly admit that they are not on a gold basis, and let it go at that. But it is a question of such vast importance to the whole world that we are not surprised to learn of important proposals looking toward the possible employment of bimetalism by international agreement, or even trimetalism, with platinum as the third of the precious metals to be utilized for monetary purposes.

Russia has repudiated. Austria is in the hands of a receiver and will repudiate. The New York Herald, in fact, boldly advises that the only sensible course for Austria is repudiation. The reckless manner in which Germany is printing money leads to the suspicion that she also is considering repudiation, directly or by subterfuge.

The wild rush of Europe, or parts of Europe, not to inflate, but to nullify and bastardize the currency, is the thin excuse on which deflationists in America have hung their policy of wrecking American and world business. There is no true analogy. There has not been a single note issued in the United States that did not have behind it the most precise gold guarantees. Had twice the volume of money been issued in the United States that was issued at the crest of the demand, and had twice as much credit been given, there would still have been no dangerous inflation in this country, but the volume of both currency and credit would have been well within the limits of safety.

Every wealth-producing agency we have would be in existence if every ounce of gold on earth suddenly vanished. Gold is not wealth; it is merely the evidence of wealth. If other evidences were required, they could be found. The bond of a man of character is better than collateral at a bank. The debts of the United States are better secured by the character of the people than they would be by enormous deposits of gold.

A debt is honestly repaid if repaid in commodities equal

in volume to those for the purchase of which the debt was originally contracted. If a billion of the nation's bonded debt was used to buy 300,000 bushels of wheat, honest payment is made by the return of 300,000 bushels of wheat. There is a great difference here from the scheme advocated by Mr. Bryan in 1896. He wanted arbitrarily to pay debts back with half as much of any commodity as had originally been loaned. We denounced that as dishonest. The deflationists now propose to pay back the debt with twice as much of a given commodity as had been borrowed originally. We denounce that as equally dishonest. The point is an important one.

It is argued that drastic deflation by the United States is subtle statesmanship worthy of commendation because, since the world is indebted to us, it means that she will have to pay her debt twice over. "We lent them money in the form of goods at peak prices; they will have to pay us back when prices are low. Thus we double the debt to us. It is good business." We say that it is rotten business, and means that we are being made a nation of pawnbrokers. We know no definition of patriotism or honor that construes robbery of allies as an undertaking to be applauded.

So much for the morality of it. A test of the practicability reveals further its utter fallaciousness. The simple fact is, as the statistics above quoted show, that Europe cannot pay her general debts or her debts to us in appreciated dollars. She may be able to pay back what she borrowed. She cannot pay back double what she borrowed. No wise creditor seeks to throw an honest debtor into bankruptcy. The skinflint who grasps for too much may find himself unable to get anything. The pound of flesh, even when nominated in the bond, is not always collectible.

The United States is incomparably better off than any other great nation, but who so optimistic as to believe that even in this country the national debt can be paid off with dollar wheat and 10-cent cotton? It cannot be done, because it means confiscation annually of the principal crops of the nation. A man does not have to be an expert economist to know that every dollar of war taxation and higher rates on the railroads is a new fixed charge on all production and must be reckoned in when figuring cost of production. Production under old cost scales has become utterly impossible. Equally impossible, therefore, is it to "carry on" under the old volume of credit and currency.

We do not believe that Ambassador Geddes has gone to London to urge that his own country adopt the American methods of deflation. It is so hinted in some dispatches by David Lawrence, the Washington correspondent, who has lately become a sort of mouthpiece for Secretary of the Treasury Houston, and has had the sublime impertinence to send out a story gloating over the fact that the volume of outstanding currency was reduced something more than \$2 per capita in two weeks by the wrecking tactics of the Federal Reserve Board. The British are sensible traders. They see nothing to brag about in the breakdown of industry. They believe that the way to pay back debts is to produce, to get income, to bring about profit. They were expanding credits at a prodigious rate during the months that our foolish Treasury officials were contracting, and many Englishmen were able to secure in London credit for undertakings in America that native Americans had to surrender because they could not secure accommodations. It was an infamous state of affairs. What the British are trying to do now, even if they have been forced to contract credit somewhat under the American whip, is to revive trade by advancing liberal terms of credit to nations with buying needs, and it is a policy that is going to be productive of great profits to England as well as good to the nations aided. The British do not want 15-cent cotton and they do not want rubber at ruinous prices.

They have never given sustenance and support to the extreme price-wrecking policy of Secretary Houston, for they knew what it would mean. When they talk about deflation, they have in mind something very different from what our Treasury officials mean. The way the American Treasury is hoarding gold at this crisis is a world crime.

The world can pay back its debts if there is decent recognition of the conditions under which they were contracted and an honest decision on the part of financial powers not to try to double their holdings by deflation. Gold producers are demanding the equivalent of a subsidy for production, on the ground that gold is really worth about \$30 an ounce instead of \$20, as provided by law a century ago. Were an ounce of gold, in fact, valued at \$30 an ounce for monetary purposes, the effect would be to increase our gold reserve, in terms of dollars, one-third. The mere suggestion is horrible to financiers, and yet one of the most efficient and distinguished officials then in the Treasury last year declared that Treasury support of the proposal to increase the cost of gold in commerce to \$30 could be viewed only as a confession that the worth of gold was \$30 instead of \$20.

We are not at this time advocating any change in the statutory value of gold. We are not arguing for inflation. We are wholly and utterly opposed to the sort of inflation that has been going on in Europe—to any inflation, in the strict sense of the term. We believe in sound money, first, last and all the time. Money ceases to perform its function as money unless it is sound. What we are arguing against is the absolutely ruinous attempt of less than a dozen men, who happen to be in power, to bring about a panic in the United States and in the world by a savage attack on credit everywhere for the purpose of disciplining the people, of contracting business to meet their textbook conceptions of finance, and of turning back the hands of the clock in order to re-establish a commodity price plane that has long since passed out of existence forever. The effect of their program is not only to double the world debt, making its repayment impossible, but it has also brought about an era of nonproduction at a time when the supreme necessity of the world is production. It is a program that is essentially dishonest, and dishonesty never pays in the long run. A third of the manpower of the world, it is estimated, has been driven into idleness, and this at a time when close statistical studies seem to indicate that there is no world surplus in basic commodities, as the deflationists contend, but an actual deficiency. There is an apparent surplus only because the agencies of transfer have broken down, and an American Secretary of the Treasury takes the position that we can extend charity to the needy, but must in no circumstances sell them anything because they have no security to offer for payment.

It is understood that arrangements have been made whereby Governor Harding will sever his relations with the Federal Reserve Board to accept a position in private life. We trust that he intends to make this move before his term expires next year. Then, with the advent of a new Secretary of the Treasury and a new Comptroller of the Currency, the incoming Administration can quickly secure control of the financial machinery of the nation. It does not occur to us that there is any possibility whatever of the continuance of the stupid and destructive policy which has been pursued the last year or more. The new Board will doubtless move conservatively, but it will unquestionably permit the news to get about that it is constrained to view with some measure of approval efforts of producers to get going again and will not oppose reasonable prices that permit a fair profit. When these things are understood the world will begin to take courage again. Nations will feel that they can pay their debts when the things they produce are worth something. They know they can never pay them under the low-price conditions the American Treasury has lately sought to enforce.

What Some Bankers Think of the Federal Reserve Board

IN a circular issued to wholesale grocers, W. M. McCormick & Co. of Baltimore, the head of the house, W. M. McCormick, being one of the leading bankers of the city, makes some statements which, coming from a banker, should carry a special weight with those who have tried to regard with a slight degree of favor the deflation, destruction campaign of the Federal Reserve Board.

Commenting on this whole situation, McCormick & Co. say:

"The pill of deflation was a bitter one—no doubt necessary, but some medicines are as dangerous as the disease itself, especially if administered by inexperienced or incompetent physicians. Certainly every business man must look with apprehension on the fact that the Federal Reserve Bank of New York in 1920 earned \$51,500,000 net on the average paid-in capital of \$24,500,000. This is equivalent to 210½ per cent, compared with 127 per cent earned in 1919. This latter was unprecedented and greatly criticised by thoughtful men. This was never the intention of those who framed the Federal Reserve Act, yet the abuse of the act is the shame of the day, causing our people of all classes to lose heavily, particularly on their Liberty bonds, and worse even than that is the loss of faith and the suspicion that the workmen, and others as well, have of the Government today.

"Our Secretary of the Treasury has stated that he thought the expenses of the war should all be paid off in five years. We differ with him in this—think it should be nearer 50 to 100 years. To do as he suggests would force many thousands more manufacturers, merchants, farmers and mechanics into bankruptcy. We have already seen enough of this evil, and the plan is fundamentally wrong.

"Let us fund a large part of the floating debt, put Government bonds on a 6 per cent basis, payable in 10, 20, 30 and 50 years or over a longer period, with a reduction of one-half of 1 per cent on the interest rate every five years until the series are brought down to 4 per cent, and you will see the country filled with enthusiasm, and the result will be prosperity that would take the pressure off of our people and help to re-establish confidence.

"We were told to buy Liberty bonds until it hurt. We did so, but the pain we now feel means death if continued. This was certainly not Mr. McAdoo's original idea, and his caustic remarks regarding the present method of handling the Treasury are quite in line.

"Let us hope and pray that hereafter we will have practical business men in the Cabinet of our Presidents, men who will be alive to the situation and able to visualize conditions in time to change before it is too late."

Two other statements from bankers which have come to the MANUFACTURERS RECORD within the last few days are of interest. A former bank president in Florida, now engaged in other business in that State, a few days ago volunteered the suggestion that the MANUFACTURERS RECORD could not print his views on the Federal Reserve Board. "I know," said he, "that the MANUFACTURERS RECORD has been aggressive in denunciation of the Board's blunders, criminal blunders, as I regard them, but the MANUFACTURERS RECORD could not put into cold type what I think about the men responsible for that campaign." And when asked what his views were, which were so strong that they could not be published, he said, among other things, that he regarded the members of the Federal Reserve Board as traitors who had betrayed their country, and who should be treated exactly as all other traitors are during war periods, and a little more on the same line, and with very considerable emphasis in his language.

Two days after this voluntary suggestion the writer met a very prominent contractor engaged in large operations who is a director of two banks, and he promptly volunteered his opinion of the Federal Reserve Board's policy of deflation. The view expressed by banker number one was repeated to him, and he said that he fully and heartily endorsed that view, and he added:

"I was in Florida last winter when I received from the Federal Reserve Board a circular-letter addressed to banks and to all directors of banks urging that all loans on Liberty bonds

should be called by the banks. As soon as I read the circular I wrote to the president of one of the banks of which I am a director. I reminded him of a letter that we had received from the Federal Reserve Board urging us to do all in our power to induce our stockholders and depositors to buy Liberty bonds to the utmost extent of their ability, 'to buy until it hurts.' I reminded the president that we had carried out that policy, with the promise from the Federal Reserve Board and our bank that we would protect these bond buyers and let them have the money with which to carry the bonds until they could be paid for out of savings, and then I added: 'In view of these circumstances, I recommend that you write to the Federal Reserve Board rehearsing the entire situation and then tell the Board to go to ———' a place where ice factories are not yet operating. When I returned home in the spring, I reviewed the whole situation to our board of directors, reminded them of the correspondence and gave the same advice. Our bank has never yet called a loan on its Liberty bonds, and I think the statement made by the gentleman whom you have just quoted as to the members of the Federal Reserve Board being traitors to their country and how they should be treated is absolutely correct."

These are rather strong statements. We would hesitate to publish them but for the fact that the Federal Reserve Board and the interests back of it are doing all in their power to mislead the country and seek to create the impression that the conditions which now exist in agriculture and industry and trade are the natural outcome of economic demands. They are the inevitable outcome of a desperate game carried on for the express purpose of breaking down prices of products and wages, regardless of doubling the burden of national indebtedness as measured in terms of productive energy and output. Our indebtedness was incurred under high prices and high wages; under low prices and low wages the burden of carrying this debt and paying it is now doubled, as expressed in productive energy and output.

It has recently been estimated that of the 20,000,000 original bond buyers under the promises of the banks and the Government to protect them about 16,000,000 have sold out. We wonder how many were forced to sell. Our readers will remember that early last winter we published a statement from a leading banker taking the ground that it would be better for the country when these weak bondholders had been forced to sell and when their bonds had fallen "into the strong boxes of big insurance companies and big estates." Recently the daily papers have been gloatingly telling about the great increase in the price of bonds which they say has added \$1,000,000,000 to the welfare of the bondholders of the country as compared with prices recently ruling. Unfortunately, a very large proportion of this increase has gone exactly where we said it would go, to the big bondholders, big insurance companies and big estates whose ownership of these bonds greatly lessens their income taxation and gives them a first mortgage on all the resources and working power of the country.

The game is not yet completed. The burden of this bonded indebtedness, doubled or trebled by low prices and low wages as compared with the wages and the prices prevailing when the bonds were issued, is like a millstone tied around the neck of the producers of the country. They must work the harder and the longer in order to pay the indebtedness fastened upon them by this doubling and trebling of the burden of bonded indebtedness.

The game has been played by the international banking element many times in the past. It is being played again and the American people are being caught as suckers jumping at the bait the Federal Reserve Board and its coadjutors dangled before them, and they do not realize that "in swallowing the bait, hook, line and sinker" they are losing their own financial freedom.

We are glad that there are many bankers in the country whose ability to speak out openly has not been held back by

the chains of financial slavery to the Federal Reserve Board. As Senator Owen, one of the fathers of the Federal Reserve System recently said, the bankers dare not take the initiative, because they are in the power of the Reserve Board and their financial life was at stake at any time they dared to criticise the Board.

A reorganization of the Federal Reserve Banking System is supremely necessary in order that it may not be possible for a little group of incompetent, obscure, so-called financiers to strangle the business life of the nation, to bring poverty to millions of farmers and to destroy the prosperity of the whole country and to throw millions of people out of employment.

A letter received from a Norfolk manufacturer dealing with farmers, in discussing the whole situation, calls attention to the complete stoppage of all business in his line, and adds:

"Just what Uncle Sam will do for revenue in 1922 is a grave question, as it seems very certain that there will be little profit made by business houses this year.

"Uncle Sam," said he, "seems to have slipped a cog in the management of financial affairs."

Uncle Sam did slip a cog, but it was due to the fact that the Federal Reserve Board and Secretary Houston kept on throwing monkey wrenches into the machinery of trade in their clumsy ignorance as to how to keep it going, and the monkey wrenches have knocked all cogs out of place. Heaven be praised that Secretary Houston cannot much longer remain in power, and Heaven may well be petitioned that other members of the Federal Reserve Board will have grace enough to retire and permit the new Administration to completely reorganize that Board.

Mr. E. W. Dabbs, Maysville, S. C., operating a number of farms, writes under date of January 21 in regard to the work of the Federal Reserve Board as follows:

"I have just written the Asheville Citizen to know if business there is sufficiently pre-war to satisfy the editor. He was so sure last fall that the Federal Reserve Board was right, I told him that whereas a year ago there were no empty cars on railroad storage yard tracks except a few in need of repair, and for weeks at a time there were no empties, there are now miles of empty freight cars in every yard of the great railroad systems, and the Southern Railway has annulled several of its passenger trains. This looks as if the Federal Reserve Board has accomplished its purpose to put business back on a pre-war basis. I hope all the admirers of the policy of the Federal Reserve Board are sufficiently pleased, but some of us think a crime against civilization has been committed, that abounding prosperity has been turned into business stagnation that has thrown millions of laborers out of employment.

"Some editor said a few days ago that our farmers are so much better off than the farmers of the Old World that we ought not to complain. Of course we are, but we owe no thanks to the Federal Reserve Board that we are. We are better off because, under the Providence of God, our fathers came to this land and here organized the first free government of the world, and because of the opportunities that have been ours—because God has blessed us in spite of the mistakes and blunders of the Federal Reserve Board, that class of financiers who could double and quadruple our war debts. But because we are so much better off than the farmers of other lands is no justification for any board to rob us of the fruit of our toil. Nor is there any reason why legislatures and Congress shall lay heavy taxes on our people—taxes that are more than double because of the double purchasing power of the dollar.

"Keep up the fight! But for the fight you and a few others have made there is no telling to what extreme we would have been reduced."

From one of the leading financiers of Atlanta we have also received a letter in which he vigorously criticizes the work of the Federal Reserve Board in bringing about the deflation of credit. Our own experience leads us to know that there are a great many bankers whose views are in entire harmony with those of the MANUFACTURERS RECORD on this subject, but they are afraid to express their sentiments

for fear that the power of the Federal Reserve Board will be used to destroy their institutions, which is in harmony with a statement of Senator Owen made through the MANUFACTURERS RECORD some months ago, that banks dare not take the initiative in criticising the Federal Reserve Board for fear of their own lives, so great is the power of the Board.

AMERICA IN HOBBLES.

THE Southern Railway has announced the discontinuance of eight important passenger trains. A gentleman whose business particularly fits him to know conditions sends us a newspaper copy of the announcement, and says: "The attached clipping indicates the condition of general business. The people are very blue, and many do not look for a change for several months. The harbor is filled with boats tied up and no cargo in sight. It is difficult to make an impression when conditions like this prevail. Optimism is of no avail. I rode on the crack train of the Southern which runs from Cincinnati to Charleston, the Carolina Special, from Spartanburg to Charleston. The Pullman I was on had four people in it, and the one in front had two. There were only six passengers in the day coach."

Washington set out to kill business some months ago and did it. Governor Harding has confessed that in September control of the situation was lost. Business was hit such a blow that revenues to run the Government under the existing revenue law will be insufficient, and the railroads, even with the new high rates, are showing such alarming declines in traffic offering that, whereas a year ago they were unable to handle the business, they are now having to cut down the service.

It is, nevertheless, no time for pessimism. Commodity prices are undoubtedly at the dead low, being lower in some cases than the pre-war average. It is but a few weeks until the pigmies are hurled out of the Treasury and men of broad vision take their place. Then prices will begin to return to a fair economic level. Conditions are wholly unnatural and artificial. They cannot be kept that way. America cannot permanently be hobbled.

"GO FORWARD!"

Carolina Realty Co.

Charlotte, N. C., January 13.

Editor Manufacturers Record:

Replying to your favor of the 3rd instant, beg to advise that we have always enjoyed very much the MANUFACTURERS RECORD, as it always stands for something worth while. We have read with much interest your comments under the heading, "Go Forward," and we believe that is what the country needs today.

We might state for your information that we are expecting to begin our building operation in full force between February 1 and March 1 and it looks to us as though this will be a record-breaking year in the building line. There is no reason why it should not be. We need the buildings, the manufacturers and merchants need to sell the material and the laboring class of people need the work, and with these conditions staring us in the face why should we not "Go Forward"?

We feel sure that the time is ripe for building and material can be purchased and contracts placed at a lower figure during January, February and March than we will be able to place them again in a number of years to come, and all people are waiting for prices to begin to increase and then they will all go to building. We feel sure this condition will be here not later than March 1. All the people need is a little confidence and they will get that when prices start up. You can't build enthusiasm on a declining market. We are very optimistic, which is based on the soundness of America.

We are handing you herewith our check in the amount of \$6.50, paying our subscription to January 27, 1922.

W. D. WILKINSON, President.

The Exchange Problem Requires a Fundamental Solution

THE world is tired of emollients and palliatives. Cabinets rise and fall and new men sit at dusty desks, perusing old reports, one and all intent, as were their predecessors, on fitting the new world into the mold that held the old. It cannot be done.

Statesmanship must get down to fundamentals. It must find primary solutions. The factors in the equation are recognizable and assessable. We know, first of all, that human character has not changed. Men are still influenced, as they have always been, by the same elemental instincts. They love, they hate; they work, they play; they save, they waste; they are lured by ambition and they are fired by lust; they seek the means to live; they long for security. We can disintegrate the human character and find in it the same basic characteristics that have been there since God first breathed the breath of life into mankind. The race is not less sensible, less docile, less daring, less noble, less enduring than it was. Indeed, its elements have been refined in the crucible of the ages. The furrows of the brain are deeper than they were and the areas of talent more extensive.

The diagnosis reveals that there is nothing seriously different in humanity. What have broken down are the vehicles of action. Systems, not men, have become obsolete. It has been said that in 40 centuries man has made no progress in the art of government. Certainly statesmanship has not kept pace with material achievements. We have passed in a hundred years from an earth-bound and locality-bound people into an earth-wide civilization. It is wonderful that we plough the air with whirling engines, but it is still more wonderful that the area of one man's activity is no longer the town of his habitation, but the whole, wide earth. The sun no longer rises from the islands of the gods and sets in the black depths of Ethiopia. It does not set at all on our arts and our mechanics. We have built the vehicles of universal transportation. We know how to move goods by the ton from anywhere to everywhere, and our accomplishments in physical endeavor justify enthusiasm. In this respect the world does not suffer. On the contrary the ravages of war have been more than compensated for on the seas. We have more cargo space than we have cargo.

The world's trouble is not in the movement of goods to and fro. That has been solved. The trouble lies in the inadequacy of the financial machinery employed to give ledger evidence of the transactions. There is modern machinery for the transport of goods; there is only ancient and outworn machinery for the financing of such transport.

Exchange, as we know it, is not a scientific system, carefully planned and worked out as is a steamship or a motor truck. It is something that has just grown up. Modern finance itself is hardly half a century old. In exchange we are not considerably more advanced than were the Phoenicians or the Greeks. If a country by unwise policies wrecks its own currency, which only circulates within its own borders, it also wrecks its foreign trade, under the present system. Italy may have tons of material which we want, and we have tons of material that Italy wants, but an interchange is made almost impossible because, forsooth, the interior currency of Italy is worth less per unit than it used to be in the distant past. The arithmeticians and the calculators, the adding and the subtracting machines, have been given a world-wide trade hegemony, and it is an insufferable tyranny.

We faced exactly the same situation in this country at one time, but had brains enough to do away with it. Time was when the circulating medium in one colony was worth little or nothing in another colony. Then exchange was of trivial importance in comparison with what it is today, because almost all trade was by barter. A ship leaving New York

with cargo for the Indies expected to trade that cargo for another at Bombay. The return cargo was sold in New York for the same sort of money that had purchased the original cargo. Quite similar was trade between the colonies themselves. But when the colonies became a nation they provided for a uniform currency.

We have nations on the gold standard, nations on the silver standard and nations on no standard at all. No trader who accepts payment in terms of national currencies knows whether he is being cheated or not until the calculators have dulled their pencils. Then he may discover that he has been cheated anyway, because New York or London has decided overnight that a crown is worth less than it was the day before. No merchant can remain a merchant and be in foreign trade. He is converted into a speculator, because the thing he gets in return for his goods has no absolute value, but fluctuates with the rapidity of a revolving fan. Untold millions are taken in profit and losses in the buying and selling of monies, and international trade has become a great gambling institution, with the prosperity of millions dependent on the quotation the bankers may give today or tomorrow for this or that national currency.

The bankers say that exchange conditions can be remedied by restoration of normal trade balances. But any new Government may come along and issue billions of paper currency for circulation at home. That would not change the intrinsic value of a single bushel of wheat or pound of lead in the world markets, but in terms of marks or crowns it would change the "money" value of every bushel of wheat and every pound of lead in Germany and Slavia.

It is impossible for all nations to get back to a gold basis. If they did, the quantity of gold left in the United States would be so small that a contraction of billions would be necessary under the Federal Reserve Act, and stark ruin would encompass the nation. There have been such vast issues of securities the world over to finance the war that the gold supply of earth is no longer sufficient to sustain them. It is ridiculous to talk of a universal gold basis. Only the discovery of enormous new supplies would make that possible, and the bankers would dread such new supplies on the ground that inflation would follow.

Obviously all attempts so far made to rectify exchange by the usual devices of balancing exports and imports were certain to be futile. The worth of many currencies is mere guesswork. Nobody knows what they are worth, if anything. Nor is it possible to write tariff laws that are efficacious with values so fluctuating, unless duties are specific.

We understand that the British Government, with characteristic vision, has prepared an elaborate plan for international trade which entirely eliminates the present methods of exchange. We are told that there is contemplated the formation of an international clearing house whose certificates of commodities in transit, somewhat similar to warehouse certificates, would serve as the basis for instruments of credit, or currency, in much the same way as the reserve banks, in theory, issue their notes to cover current transactions. The system would be, in effect, a combined international warehousing and Federal reserve system. The reserve would consist of stated deposits of gold, each country contributing according to its trade, but the gold remaining in the physical possession of the contributing country. Countries not possessing gold in sufficient quantities could offer as guarantees acceptable national bonds, the interest on which could be assured by first liens on the taxes or other productive sources of revenue.

We have not the definite information before us that would

justify criticism of the scheme, nor are details of it available. But what we are quite confident of is that the world will not much longer countenance the suffering and ills which are the necessary companions of the obsolete and inefficient methods of finance which now characterize the conduct of foreign trade. The statesmen will have to scrap the system and find a new one. We shall be surprised if the first message of President Harding does not devote more attention to exchange than to any other subject, not excepting the tariff, and certainly the first big duty of Congress will be to bring something resembling order and capacity into the conduct of foreign affairs. The problem involves also a reconsideration of the metallic basis of money. The world is not going to accept the dictum of college economists to the effect that business and industry must halt for a generation until the miners produce enough additional gold, if they ever can, to bring the reserve up to a proper percentage of the security issues outstanding. It may be that bimetallism or trimetallism may have to be resorted to. We have heard a great deal of talk of the use of platinum as a money standard, it with gold and silver to form the new basis. The commodity dollar has also been considered seriously.

We do not think there will ever be a debased currency in this country or in any other great country. The very term implies no currency at all. But we are equally positive that the measure of human progress will not be the volume of gold locked up in the vaults of the world. To assume otherwise is to doubt the intelligence of mankind. Similarly, it is monstrous to suppose that whole peoples must starve and others endure disaster simply because statesmen have been unable or unwilling to evolve a system of financing the international exchange of goods other than by the arbitrary employment of fictitious relative values in terms of national currencies.

Until there are definite standards of value standing at par the world over trade will move with hesitant steps. The machinery of exchange must be reconstructed. It is the big issue in reconstruction.

INTERNATIONAL CREDITS SCHEME.

THE Bankers' Trust Co. of New York has furnished the first publication in America "of the official detailed outline of the International Credits Scheme recommended, for adoption, to the League of Nations by the Provisional Economic and Financial Committee of the Council of the League. The scheme proposes the formation of an international organization through which impoverished nations may, under adequate guarantees to the lenders, secure funds for the financing of their essential imports. It contemplates the appointment by the League of Nations of an international commission of bankers and business men to pass upon the gold value of assets to be assigned by these countries."

It has been the contention of certain proponents of the League of Nations that the Covenant must be accepted or a world in economic ruin would result. We have heard the charge made that the Administration deliberately brought about the present chaotic conditions in industry for the purpose, among others, of vindicating the President's belief that the League must be accepted or a breakdown of commerce be faced.

It is not true that protagonists of the League of Nations have abandoned their fight. They were never more earnestly or more insidiously active than they are at this moment. None need be surprised if a veritable avalanche of propaganda breaks over this country during the next few months, based on a plea for international business co-operation, a renunciation of inter-Allied war debts and the setting up of interna-

tional business machinery. It will be alleged that the alternative is long continuance of the existing trade slump.

There is something particularly tempting about this League of Nations scheme for the setting up of an international credits department. It holds out the promise of prompt restoration of the purchasing power of Central Europe, which, it is alleged, would restore demand the world over and put an end straightway to the stagnation now existing in commodity markets.

The Economic and Financial Committee recommends to the Council of the League that it be authorized to appoint an organizer of international credits, who shall prepare a constitution for the international commission, work out the details of the scheme in all its bearings, consider how far the scheme can be worked in conjunction with existing services in various countries, make inquiries as to how far borrowing countries are likely to avail themselves of the scheme, etc. A large executive organization would not be set up until the demand for it became apparent.

It is beyond controversy that some new and modern machinery for the facilitation of international trade is requisite. Exchange as we know it is a crude and cumbersome vehicle. But it is questionable if a proper solution lies in the discovery of new sources of credit that can be capitalized. There are many who think that the prime necessity is an international monetary trade unit and an international clearing-house rather than a new debt-creating agency.

No international credits scheme which has not the active support of the United States can succeed. The manner of organization of the instant scheme, based as it is on the permanence of the League of Nations, implies eventual acceptance of the League by the United States. There is little doubt that the intent is to offer it as a compelling reason why the United States should accept the covenant in amended form. It is simply a new form of the old plan to have the United States assist in guaranteeing the territorial integrity of the new nations, the resources of which were thereafter to be pledged. Now the effort is to capitalize these resources without the guarantee of Article X, although it is obvious that the League, having virtually created the new credits, could not possibly sit quietly by and watch the destruction of the states mortgaged.

Moreover, we doubt if public opinion in this country would place much dependence on various bond issues put out under the sanction of the League of Nations. The people's experience with Liberty bonds has made them suspicious. They would place more faith in instruments of credit issued by private companies and banks representing real commercial undertakings.

The situation is exceedingly complex and additional information will be required before definite conclusions can be reached. We know enough, however, to be convinced that if the economic rehabilitation of the world can only be brought about by the League of Nations, remembering that most of the troubles of the world now are the direct result of bad government and stupid statesmanship, we can well afford to ask ourselves if the promised relief would not in fact be the prelude to yet greater disasters. We do not think that the prosperity of the United States can safely be committed to the judgment of a committee of international bankers. The bait may be tempting, but there is a hook in it.

Booked for Life Membership.

R. WESLEY MILLER, Real Estate, Asbury Park, N. J.—Enclosed please find check for \$6.50 to cover subscription to MANUFACTURERS RECORD.

I hail from Houston, Tex.; have been here since 1913. I have always been a student of good, sound reading, and I appreciate your magazine as the best and most substantial, sound, practical and reliable. As long as your magazine stays that way, count me a life subscriber.

Secret Government Must Be Destroyed

REPRESENTATIVE McLAUGHLIN has introduced in the House a bill providing that the Federal Reserve Board and the Interstate Commerce Commission be required to hold open sessions, and to have their books and records open at all times to public inspection, following the suggestion made last week by the MANUFACTURERS RECORD. It is of significance also that the Senate, before passing the Packer Bill, adopted an amendment providing that all proceedings of the proposed Livestock Commission should be open to the public.

When the Interstate Commerce Commission last summer summarily declared an embargo on all business moving in open top cars, by turning all such cars over to the coal industry on account of an imaginary coal famine, thereby doing its share to bring about the freezing of credits and the trade slump, the energetic protests of this newspaper, backed by the opinion of business men from all over the country, compelled the Commission to hold hearings. The result of those hearings was a modification of the original orders, it having been shown conclusively that the diversion of cars without respect to their coal-carrying capacity was an inexcusable and indefensible penalization of other business.

The power of the Interstate Commerce Commission to make drastic moves without previous hearings is a sort of emergency authority granted by Congress for use only in grave contingencies likely to arise during the period of reconstruction. It has never been the policy of the nation to permit arbitrary action for the Commission without previous opportunity for interested parties to be heard, and there can be no doubt whatever but that the Transportation Act will be amended so as to restore to the public the rights to be heard that it formerly possessed.

It is even more important that the Federal Reserve Board be prohibited by law from reaching decisions that determine the prosperity or stagnation of business in general without

affording the public any opportunity whatever of protest. In present circumstances, the Board, without any previous notification, can decide to contract the currency and beat prices down at any time it pleases, and men who have arranged their business affairs on the basis of a continuance of the status quo suddenly wake to find that the entire financial situation has been transformed.

The Board should not be permitted in any circumstances either to raise or to lower rediscount rates, or the conditions under which money is advanced on Government bonds as security, without full notice to the public that such a course is contemplated and without opportunity being given to those desiring so to do to enter their protests. Millions and billions would have been saved to producers if the Board had been compelled to move along such lines before deciding to pursue a policy of drastic deflation. Whatever the final decision, at least producers would have been notified in advance of what to expect. As it happened, the process of deflation was proceeding apace while responsible Treasury officials were daring to make public statements that restriction was not under way and was not contemplated. The public was unprepared for the great crash.

We want no dictatorship in this country, be it dictatorship of the proletariat or dictatorship of bureaucrats. Any decision that vitally affects the well-being of the people they should have something to say about. Secret decisions in such cases, like secret diplomacy, are intolerable. We have seen fit to entrust to certain powerful boards and commissions extraordinary powers inherent in the Congress itself, but for these instrumentalities of government to sit in closets and reach decisions which Congress itself would never dare to reach without the fullest study and debate, in full view of the whole nation, is intolerable. The time has come when we must extirpate this sort of secret government.

THE NATION STRONGER THAN ITS CRIMINALS.

REV. VICTOR G. MILLS, D.D., pastor of the Grace Methodist Episcopal Church, one of the foremost churches of Baltimore, in a letter to the MANUFACTURERS RECORD, writes:

"Some one has placed in my hands a copy of the MANUFACTURERS RECORD for January 6, containing an editorial upon the anti-prohibition-enforcement advertisement which recently appeared in our Baltimore newspapers. I do not know you personally, but I cannot refrain from sending you this word of grateful appreciation for this outspoken defense of the principles of law and order. You have called things by their right names, and this is what is particularly needed amid the confusing voices of this critical day. I would that your words might be driven home to the conscience not only of these misguided citizens who signed this pernicious document, but of all who excuse and encourage lawlessness upon the shallow plea that they are defending personal liberty. It may interest you to know that I took occasion to read a part of your editorial to my congregation at the service last evening, with a cordial endorsement of every word therein and an expression of gratitude that this brave word had come not from the pulpit or church press, but from the columns of a journal devoted to the interests of American business."

Dr. Mills' letter was called forth by a vigorous criticism of an advertisement signed by a large number of leading business and professional men of Baltimore in which they advised the repeal of the Volstead Act on the ground that the criminal element of the country was stronger than the Government, and

that the law could not be enforced by the National Government. That was, without exception, the most culpable statement which we have ever seen put forth by reputable business men. They said that it was absolutely impossible for the Government to enforce the law and, therefore, it should be repealed. Never have we seen so damnable a statement in the interest of criminals published by men of standing.

There were bankers on that list, and yet we wonder what would be their thought if they were asked openly to advocate the repeal of all laws against robbery and forgery on the grounds that the laws to do not absolutely prevent these crimes, and sometimes in carrying out the law for the protection of the public a robber is killed or an innocent bystander or guardian of the law is injured.

We wonder what would have been their views on the subject if men supposedly to be reputable, honest-minded business men should say that, since banks are robbed sometimes by their own officials or clerks or by highwaymen, all laws against crime of this kind should be repealed, since the criminals were stronger than the Government, as the laws did not absolutely prevent robbery.

A few physicians of high standing signed that appeal. What would have been their views if other men had signed a statement protesting against the law which prevents the indiscriminate sale of morphine and other deadly drugs because the law did not prevent the sale of these drugs by

criminals, and because the law against the use of such drugs interfered with "personal liberty," so-called?

On that list there are some reputable lawyers, sworn to defend the right, and as court officers sworn to regard the integrity of the law, but these men openly proclaimed that the power of the criminals was greater than the law, and on that ground the Government must cowardly surrender its prerogatives to the criminal element. These upholders of law became abettors and co-operators with the vilest criminal element which disgraces the country, a criminal element which goes prepared at any moment to murder anyone who stands in the way of their carrying on their illegal traffic.

Shame on supposedly law-abiding, reputable, honorable men who thus link their names to an effort to uphold criminals against the country's laws, made for the protection of its citizens against the vicious element, and to call for a repeal of a law on the ground that the criminal element is stronger than the National Government, and that before these vile criminals the nation must stand and deliver its honor and its power!

ALWAYS MALIGNING THE COTTON GROWER OF THE SOUTH.

THE New York Journal of Commerce, in discussing a statement issued by the Coker Cotton Co. of Hartsville, S. C., published in last week's issue, laments the unfortunate condition of Southern tenant farmers, but misses the mark very widely when it berates the South for the poverty of the tenant cotton growers and when it discusses the price of cotton as though no other industry was suffering except the tenant producers. In the course of its editorial it said:

"Just here, however, it is fair to inquire who it is that is responsible for the evils of the tenant system in the Southern States and why that method of cultivation has not been eradicated. Certainly it is not for lack of knowledge of the conditions. They have long been recognized by economists and agriculturists, and there has been almost continuous agitation for an improvement in the laws, customs and economic circumstances which are responsible for the present unsatisfactory position. Most significant of all is the necessity of relieving the tenant from his present lack of marketing facilities, of enabling him to get cheaper credit at banks and of providing means whereby he will not have to pay for his supplies prices that are (according to some) 30 per cent or more above what he should under suitable competitive conditions be called upon to pay. There is here a general national problem, but it is also primarily a local problem. Southern bankers, merchants and business men generally have permitted the present system to exist for a long time, and have profited by it. Why should they regard the rest of the nation or of the world as responsible for the evils which their own methods of production inflict on the tenant?"

"As to the broader economic question, how the cotton crop itself will be affected if there should be no better prices and no wider market than now, there is room to differ considerably from the pessimists of the cotton region. For years past there have been these same threats about reduction of cotton acreage, but they have never been realized. It would be a great deal better if they were, to some extent at least, to be put into effect. What is needed in the Southern States upon just such farms as have been described is diversified production that will give the farmer the benefit of two or more kinds of product and will free him from the exclusive dependence upon the cotton market under which he now suffers. There is no reason whatever why this diversification should not occur except the disinclination, on the part probably both of landowners and tenants, to change the present stereotyped system of production, which is the target of such severe criticism from all those who are familiar with the situation.

"The whole question of the tenant farmer and of the marketing of farm products in such a way as to cut off the exorbitant profits of some classes of middlemen and speculators is of national significance. It must be settled fairly, not by subsidies to farmers or the maintenance of artificially high prices, but by eradicating the evils which lie at the root of the situation. Among these in the case of the cotton planter are the present system of tenant farming, the method of financing the tenant at great expense and the lack of crop diversification."

When the South has been berated for seeking to develop

diversified agriculture by lessening its production of cotton, the Journal of Commerce, so far as we know, has never defended the South from those who have cast aspersions upon its honor and integrity and have denounced every effort made in order that it might increase its production of foodstuffs. When the Federal Reserve Board definitely undertook to break down the price of cotton by restriction of credit, and when one member of the Board refused to receive any information bearing on the actual cost of cotton production; when Secretary Houston over and over again denounced prices then prevailing and stated that prices must inevitably decline, did the Journal of Commerce ever look into the situation fairly and honestly and show the condition under which the Southern cotton grower, be he landowner or tenant, was hampered by the poverty prices forced upon him by the gamblers of the New York Cotton Exchange and the fight which leading cotton manufacturers have for years made against a fair price for cotton, backed as they were by great financial forces? In this case the South was damned if it didn't and damned if it did. When it sought to get a living price for its product, it was denounced as a profiteer, and because it has had poverty prices it is berated for being poor, when the cotton manipulators of the North and those loudest in denunciation of the South are themselves to blame. Has the Journal of Commerce ever defended the cotton growers of the South against the efforts of New England and foreign cotton manufacturers to break down the prices of cotton below a fair income on labor and investment, assisted by a daring, desperate set of gamblers on the New York Cotton Exchange and in Liverpool?

The cotton problem is not, as the Journal of Commerce says, "primarily a local problem." It is a problem which the world must face, because for generations the financial forces and the cotton manufacturers of the world have done their utmost to break down the price of cotton, and we have never seen in any of the leading papers of the East, with one exception, any defense of the cotton growers.

When the chairman of the Buyers' Committee of the National Association of Cotton Manufacturers two years ago viciously denounced through the press of the East the effort of the South to lessen its cotton acreage and put a larger acreage in foodstuffs, did the Journal of Commerce utter one word of protest against such a malign attack upon the South? We have not yet seen in the two years since that vicious statement was published a repudiation of these criticisms by any New York or New England paper, nor by any organization of cotton manufacturers in the East. At that time an effort was being made in the South to increase acreage in foodstuffs and to lessen the acreage in cotton. Governor Allen of Kansas, who knew no more about the situation than the man in the moon, jumped into the ring to denounce the South for this effort; the chairman of the Buyers' Committee of the National Cotton Manufacturers' Association did the same thing, and, so far as we have been able to learn, no paper and no manufacturer of cotton goods came to the defense of the South, and yet the Journal of Commerce now criticises the South because it has not lessened its cotton acreage by increasing its acreage in foodstuffs. The criticism of the Journal of Commerce is on a par with much of the criticism to be found in Eastern papers about Southern conditions. It demonstrates that that paper either does not know anything about the real facts in the case or else it prefers to misrepresent the situation.

The actual facts as to cotton growing and the poverty entailed by the low prices of the last 50 years, with the exception of two years, have been printed over and over again by the leading papers of the South, by the MANUFACTURERS RECORD and by the Government itself, and yet it has been impossible to awaken any interest on the part of the New York daily papers of an intelligent understanding of the situation.

SOUTHERN INDUSTRIAL PROGRAM OF READJUSTMENT CONTINUES WITH UNABATED VIGOR.

CONSTRUCTION activity by industrial and public utilities companies and municipalities continues with accelerated vigor in the South. Plans have been completed and the contract awarded for the construction of a complete fertilizer and acid-phosphate plant to cost approximately \$1,000,000 for the Rasin-Monumental Co. at Baltimore, subsidiary of the Virginia-Carolina Chemical Co. of Richmond, Va., and work will begin in the near future. The Chesapeake & Potomac Telephone Co. of Baltimore has commenced installation of new equipment at its exchanges for automatic telephones, which will entail an expenditure of upwards of \$1,250,000 and be carried over a long period of time. Work has been started on a \$600,000 building annex at Richmond for the Federal Reserve Bank, which will cost \$800,000 in addition to the main structure now fast nearing completion at a cost of \$1,500,000, and indications are that a big building campaign will be under way within the next few months. Telephone improvements have been started there at a cost of \$200,000.

Chambers of Commerce, civic organizations, boards of trade and business houses throughout the South are conducting vigorous campaigns through the columns of the daily newspapers and through personal circularization for thrift and a resumption of conservative and wise buying and building now, in line with the recent editorials of the MANUFACTURERS RECORD. The movement is spreading, and bids fair to have a decided effect upon a quick resumption of normal activities in every line of business.

From textile centers come optimistic reports as to the future outlook. More and more mills are resuming full time and near full time operation, while others that have been closed entirely are opening on a three-day and four-day-a-week schedule, following readjustment of wage scales. More inquiries and orders have been received in the past few weeks than during the past two months, say mill men.

Indicative of the upward trend in general business conditions and the tendency to a resumption of buying on a near-normal basis is the report of the Southern Pine Association of New Orleans from 136 mills, which shows that for the week ending January 14 orders were received for a total of 3163 cars of lumber, amounting to over 68,000,000 feet, representing the largest volume of business received in any week since April, 1920. Reports from the various sections indicate an optimistic outlook on the future in view of the numerous inquiries that are being received, and indications are that early spring will see a revival of buying in volume, a tendency now being noted to higher prices.

Building activities continue with renewed vigor. Permits have been issued and plans announced during the first three weeks of January for new construction in Okmulgee, Okla., to cost \$1,300,000. Advances from Meridian, Miss., report the outlook good for continued building activity following the record program of over \$560,000 completed last year. Following the completion of a \$650,000 building program in Perry, Okla., in 1920 and municipal improvements of many kinds costing over \$250,000, this year will witness additional building progress, particularly in residence and business-house construction, according to the plans now being prepared and those in the hands of contractors. During 1920 upwards of \$1,000,000 was expended in mill improvements, business-house construction and new residences and similar structures in Salisbury, N. C., and hundreds of thousands of dollars will be expended in the vicinity this year in similar work.

In line with the launching of building activities in volume, improvements are being made to the established building materials manufacturing plants, and similar new factories are being erected to meet the increased demands. Extensive im-

provements have been made to the plant of the Arkansas Brick & Tile Co. at Little Rock, Ark., giving a monthly output of 4,000,000 bricks. Entirely new methods are used in burning, for, instead of setting the brick in a kiln and burning them, the bricks are first set and the kiln put around them by having the kilns movable and portable. Similarly, improvements have been added recently to the Acme Brick Co.'s plants at Bennetts and Denton, Tex., which now have a combined output of 30,000,000 bricks annually. At Bristol, Tenn., additions to the plant of the Southern Brick Co. will, when completed, give a daily output of 40,000 bricks from shale clay.

At Memphis, Tenn., there has been placed in operation a modern and complete plant for the Memphis Packing Corporation, a co-operative undertaking composed of 2700 stockholders from four States in the immediate territory. It has a slaughtering capacity of 300,000 cattle yearly, and storage pens for 6000 cattle at one time. Already plans are being considered for establishing a cold-storage plant with an initial capacity of 300 carloads of materials.

Notable progress has been made in Dallas, Tex., in industrial and commercial expansion in addition to completion of a building program involving the expenditure of over \$13,500,000, and it is estimated that the city will need 2500 new residences this year. Many of the big projects started during 1920 will be completed during this year, and indications are that before many weeks have passed new building enterprises will be under way in volume.

ABOUT TRADING IN FUTURES.

A RECENT defense of trading in grain as a safeguard to the farmer and the miller alike raises the question as to why there should be more necessity for future trading in grain and cotton than for future trading in lumber and iron and steel. Speculation through future dealing in iron has been attempted in the past, but never with much success.

The great industries like iron and steel and lumber which involve larger values than even the grain or the cotton trade do not find it necessary to hedge all their transactions by buying or selling futures. It is a question which economists and business men may well study as to whether the system which prevails in the handling of these great interests would not be equally applicable to the grain and the cotton business. Their ramifications are no larger than those of iron and steel and lumber. If the latter do not find it necessary to speculate through future trading to the extent of many times the volume of actual production of these things, may it not be possible that a similar system could be carried out in all the ramifications of the cotton and grain businesses?

Livestock and Diversified Crops.

"Conditions are now ideal for building a real livestock industry in the South," says Roland Turner, general agricultural agent of the Southern Railway Co., who declares that the present depression, due largely to the one-crop system, would be impossible under a well-balanced plan of diversified farming and livestock raising.

"Good pure-bred, registered dairy cattle, beef cattle and hogs," he continued, "can now be bought at prices in keeping with conditions and with the market prices for dairy products and meat animals. To succeed at livestock raising we must improve our old pastures and prepare new ones. We must raise more leguminous feeds. Proper crop rotation with livestock will build up the fertility of our exhausted soils and will also help greatly in improving farm labor conditions by better distributing the farm work."

"The Southern Railway Development Service," Mr. Turner added, "desires to aid farmers in starting right with livestock. It will send its livestock bulletins on request, and it offers the services of its trained workers to farmers wishing advice and assistance in feed production, care of animals and the locating and selection of animals for breeding purposes, stockers or feeders."

BROAD HIGHWAY DEVELOPMENT

Build National Safety and Progress by Building Highways

NOT all the power and wealth of the nation if thrown into the expansion of railroad facilities could possibly within the next 10 years provide adequate transportation to meet the needs of the country in that time.

The automobile and motor truck have come into being as a part of a great economic and social revolution, which rightly used will mean as much for national advancement as the development of our railroad system, perhaps even more.

We have come to a point where motor trucks and automobiles are the individual property of one man or a small group of men and where there can be no such abuses as the country suffered from in times past by the mismanagement of railroads, nor such disastrous results as we are now suffering from in the complete domination of railroads by labor unions, aided by the National Government in the passage of the Adamson Act.

What the sea is to world commerce, free and open to every ship that spreads its sails or every steamer that fires its boilers, good highways will be to the traffic, passenger and freight, of this country. The highway must be developed to meet the rapidly expanding motor vehicle traffic. It must be built on a firm foundation, so solid and enduring that it may stand the tremendous pounding of the heavy motor trucks which are to do much of the traffic that railroads are no longer able to handle.

A few years ago Florida began a campaign of highway building. It then had possibly the most intolerable, impossible roads of any State in the Union. They were either a bottomless sand waste or of bottomless mud. Today one can motor for a thousand miles over unbroken stretches of splendid highways throughout Florida, and it is literally true that within a thousand mile trip one would never be out of sight of other cars, and often a dozen others would be in the range of vision for a greater part of the time. Florida has built thousands of miles of such roads, and its appetite has been whetted for more.

These roads have developed motoring by the tourists and by the local people to an extent that few would ever have deemed possible a few years ago. A horse-drawn vehicle is rarely seen on any of these Florida roads. Motor trucks are in evidence everywhere. Motor busses carry passengers on regular routes of 150 miles or more. The vast citrus fruit and early vegetable business of the State is now handled almost exclusively from the farms to the towns and the railroad depots by motor trucks.

What Florida has accomplished in the last five or six years in revolutionizing its entire business through the building of good highways can be done in every other State in the Union wherever there is a spirit of broad enterprise matching that of the people of Florida. It is probable that Florida has spent more in proportion to wealth and population on good highways than any other State. But the success which it has achieved has intensified the realization in that State

of the value of highways, and so Florida keeps on in its campaign building new and better and wider highways.

There is a spirit abroad throughout the South for highways which augurs well for the future. But not all Southern and Western States have yet realized that the building of a highway is an investment which immediately brings, not once only, but annually for all the years to come, a profit perhaps as great as the original investment.

It must be fully understood that motor traffic will develop on a larger scale with heavier cars just as rapidly as good highways are provided, and that the people, farmers, merchants and manufacturers tributary to these roads are the ones who reap the profit therefrom. Their life is broadened, their ability to do business is increased, the opportunities of the farmer and his family for social life, for educational advancement, for church attendance are all greatly increased. The farmer becomes a city man in one sense in that he is within easy reach of the city at any hour of the day. The physician is made available and thousands of lives are saved annually by the ability of physicians to travel at rapid speed to the bedside of the sick and suffering. The merchant and manufacturer have broader opportunities for business.

Indeed, from every standpoint, every argument is in favor of the building of good highways, and building so permanently and solidly that they can stand increasing traffic for years to come. No one should make the mistake of communities in road pioneering work who accepted anything in the way of an improved road, thinking it would last forever. Build for permanence and with a foundation that will stand hard knocks.

The time is propitious for doing the work. It can be done now to great advantage as to cost of labor and materials. Employment can be given to thousands of men who otherwise would be idle, and the creation of employment is absolutely essential to the safeguarding of the life of the nation.

Unemployment is the hotbed for the propagation of bolshevism. Now is the accepted time for public work which will create employment and accomplish things that need to be done. Road builders will be literally building their own road to national safety and prosperity.

Throughout the entire country, north, south, east and west, we should carry on an active work in highway construction which would fully match the tremendous activity of railroads in years gone by when we were building as high as 10,000 miles of road a year and sometimes still more.

The highway must supplement and in many cases supplant railroads. It is not a destroyer of railroad values; it is a creator of business; it intensifies and broadens the nation's progress and makes possible the development of better railroad conditions to the benefit of railroad owners and to the good of the country.

Then on with highway work as one of the supreme needs of the country, the achievement of which will bring blessings untold from the material, the moral, the religious and educational standpoint alike.

ESSENTIAL TO NATIONAL PROGRESS

South Again Shows Largest Annual Rate of Increase in Motor Vehicle Registration As Compared With Entire Country.

THE South in 1920 again maintained its position in showing a greater rate of increase in motor vehicle registration than the rest of the country, according to figures recently compiled by the B. F. Goodrich Company, Akron, O. The average increase in the sixteen Southern States in 1920 over 1919 was 29 per cent, which is the same rate of increase in motor vehicle registration which it showed in 1919 over 1918. This evidences the fact that the South has continued during the past year to maintain its same rate of increase in the purchase of motor vehicles.

Another significant fact is that out of the twelve States which show a rate of increase in motor vehicle registration of more than 25 per cent, ten of these are Southern States, and eight Southern States stand at the very top of the list, surpassing all others in the country in their rates of increase. The following table gives the list of the twelve States which stand at the top and show a registration increase of more than 25 per cent:

State	1919.	1920.	Rate of Inc.	Rank.
Virginia	94,100	142,154	51.1	1
Mississippi	45,030	65,000	44.4	2
Florida	55,400	78,500	41.7	3
Oklahoma	144,500	213,218	40.6	4
Louisiana	51,000	70,000	37.3	5
West Virginia	50,203	68,000	35.5	6
Texas	331,310	431,938	30.4	7
North Carolina	109,017	140,860	29.2	8
Massachusetts	247,182	314,631	27.3	9
Alabama	58,898	74,637	26.7	10
Michigan	325,813	412,690	26.3	11
Kentucky	90,008	112,680	25.2	12

This continued high rate of increase in the purchase of motor vehicles in the South has been due not only to the widening development of this section, but also to the steady improvement of its highways. There is no section in the country which is showing greater interest in highway improvement, nor manifesting this interest to a larger extent

by the voting of funds to carry it on, than the Southern States. It is conservatively estimated that at least \$400,000,000 are available now in the South to carry forward road-building improvements. The last several years have not been so active in this type of work as they might have been, due to interference with transportation and high prices of materials and labor. It is expected, however, that 1921 will be the greatest year which the South has ever witnessed in the building of modern highways, and, as is shown by the statements from the Southern States in this issue, plans are being worked out to carry forward highway construction in a big way.

Naturally, this is going to further stimulate the use of the highways, and this in turn will mean a better market for the sale of motor vehicles. It is not beyond sound reason, therefore, to predict that the Southern States in 1921 will maintain their supremacy in the rate of increase in motor vehicles purchased and will be a splendid sales field for this type of equipment.

The importance of this Southern market is also well evidenced by the fact that to an increasing number the leading manufacturers of passenger cars and motor trucks are establishing branches and agencies all over the South to secure a share of this business, while those who make tires and accessories are steadily increasing their facilities to cover this field.

The motor vehicle has been and will continue to be an important factor in the expanding development of the South, and it will also have a wholesome influence in helping to solve problems of transportation so vital to business and farming alike, as well as exerting a stimulating benefit and betterment in the religious, social and industrial life of the people.

\$913,000 to Be Spent Near Ruston, La.

Ruston, La., January 24—[Special.]—Construction of highways, streets and public institutions involving an expenditure of \$913,000 are on the building program for 1921 in Lincoln parish and the city of Ruston. The amounts and purposes of the expenditures follows: Highways in Lincoln parish, \$500,000; street paving in Ruston, \$88,000; Louisiana Polytechnical Institute, new buildings and improvements, \$200,000; Louisiana Methodist Orphanage, \$125,000.

The money to be spent on roads will be used in the construction of the Pershing Way and the Dixie Overland, two national highways that intersect at Ruston, and later roads that will connect with those trunk lines. Lincoln parish raised the money through a bond issue.

The Ruston Chamber of Commerce has perfected plans for a camping ground for tourists at the intersection of the Pershing Way and the Dixie Overland highways. This is being arranged in connection with a 40-acre amusement park and fair grounds.

Ruston has adopted a paving program that will result in every street in the city being paved. Some of this work has already been done.

Louisiana Methodists recently decided to build a State orphanage for the church, and Ruston was selected as the location. Construction work will be done during the year.

Campaigning for Good Roads.

Whitesburg, Ky., January 22—[Special.]—Judge Fess Whitaker, who conducted a remarkable campaign from the Letcher county jail last fall on the good-roads question, is starting an extensive good-roads campaign in the coal fields surrounding this city. Several contracts have already been awarded. One, and the most important, is the roadway up Line Fork and through Hurricane Gap to the Cumberland River branch of the Louisville & Nashville. This highway will connect both Louisville & Nashville branches, the Kentucky and Cumberland rivers.

Another road will be the Whitesburg-to-Hindman roadway, from Whitesburg to Hindman, 26 miles, connecting an overland town having no railroads. Another, the Colly Creek road, will be built several miles up Colly Creek. It is also stated that Letcher is completing arrangements for the building of its part of the Kentucky River highway, which is to run from the Virginia line down the river via Whitesburg, Hazard, Jackson, Beattyville and Irvine to Winchester, in the Bluegrass region, 200 miles.

According to Judge Whitaker, Letcher will have over \$500,000 available for good-roads work, including the \$300,000 in bonds voted in November. Judge Whitaker has also promised the people that he will personally go on the roads and work three days the week.

Efficient, Co-ordinated Transportation by Highways in Relation to Our National Activities

By LEE LAMAR ROBINSON, Chief Highway Transport Division, Council of National Defense, Washington, D. C.

Highway transportation, the importance of which was recognized to an extent at least prior to the war, but the potentialities of which were far from appreciated until emphasized by the war, is to be brought to the attention of 42 State Legislatures meeting this winter in the form of suggested uniform highway traffic laws. To the end that not only a suggested uniform act, but that data bearing on the subject of highway transportation be available for information purposes, various bodies, both Government and private, have for several years been making an extensive study of this subject, and are thus in a position to fortify themselves in asking that uniform acts be passed.

The studies of a uniform highway traffic act have harmonized with studies made of efficient and economic highway transportation, and the latter is inevitably tied up with the problem of road building itself. The beginning of 1921 finds the country, therefore, very much interested in and very much dependent upon efficient highway transportation, the promotion of the road-building campaigns already started in many sections, and the passage of such uniform highway laws as would operate to the best interests of the greatest number of people.

Highway transportation itself not only bears a vital relation to other forms of transportation, but to the economic phases of agriculture, commerce and industry. It is a subject which has to do with the movement of persons and commodities within municipal boundaries, as well as over the country highways. The terminal question, the solving of which will provide the key to economic transportation in and around the great centers, is another phase of the highway transportation problem which is very much to the forefront. The interests of society, the schools, the church and the community problem all are interwoven with that of rapid and satisfactory transport over the highway.

The bringing closer together of the consumer and the producer of foodstuffs, toward which individuals, organizations and legislative bodies are working, cannot be successfully accomplished without recourse to those agencies of transportation which move over the highway. The time is not so far distant, it is being predicted, when the railroad companies will turn to the motor truck as a substitute for the poor-paying short line in many instances, and also for the purpose of penetrating into promising territory contiguous to the main line, acting as a feeder. A gratifying fact is that common ground is being found on which the supporter of motor transportation, of rail transportation, both steam and electric, and of waterway transportation may meet for the purpose of considering just wherein their interests might be mutual and the highway made to serve a fine economic purpose without at the same time trespassing upon the interests of either of the other agencies of transportation.

The Federal Highway Council, through its transportation bureau, has made material progress along the latter line, and is doing a constructive work of great value. In a recent statement Chairman S. M. Williams of the council pointed out very pertinently the danger of establishing highway transportation beyond highway development, and called attention to a report of C. W. Reid, manager of the council's transportation bureau, in which Mr. Reid said traffic men are taking a practical view of the situation in co-operating to the end that they be not caught napping when the traffic tide begins to rise again. Hence the study being made of motor-truck terminal zones as a co-operating branch of the railway and express service.

Records of the Highways Transport Committee of the Council of National Defense, which committee functioned throughout and immediately following the war, not only furnish concrete evidence of the number and character of transportation crises which may develop, but suggest methods for the remedying of many of them, among these being the greater utilization of the highway and its twin agency, the motor truck, as potential mediums for emergency service, as well as for that day-to-day performance which has

established them as agencies upon which plans for the future may be built.

A system of highways which, with the necessary transport, will efficiently serve the nation both from a military and an economic standpoint is badly needed.

In the East, in New England, for example, the most congested section of the country probably from a transportation standpoint, is found an ideal section to develop along highway transport lines. There the roads are good, the mileage adequate, the towns and cities close together as compared with the West, and it should be possible to work out transportation schemes involving the use of motor apparatus of great value.

Secretary of Agriculture Meredith is one of those who believes that some method of getting crops to market without too much lost motion should be provided. This spells more and better roads and improved highway transport. In this respect he shares the views of such men as Prof. T. C. Atkeson, for many years dean of the Agriculture College of West Virginia, and now in Washington at the head of the office of the National Grange, that farmers must have help, and that laborers in industry, themselves also real producers, must make an effort to see that there is just as little labor as possible in each article turned out by them if the living cost is to be cut.

Industry, for example, has its concern in highway transportation, particularly in view of the fact that it cannot rely on rail service alone. Where industry and agriculture are affected, commerce and finance alike also are interested, so the problem is an ever-broadening and an all-embracing one. With one form of transportation inadequate, then the economic interests of the nation demand a study of those supplemental transportation agencies which offer hope of filling in the gap.

Again, once the highways are completed and the transport machinery for moving over the highways made efficient, comes the question of keeping the roads open that transport may move expeditiously over them. This brings in the all-important question of snow removal, which, happily, is being studied in all the States where the snowfall is a road menace, and steps toward meeting the problem annually being taken.

Summing up, as it were, briefly, it is apparent that the transportation situation in the country today must be faced and worked out in the best way possible, with the aid of agencies of every character, Federal, State, city; commercial bodies, industrial and agricultural organizations, and individuals. As illustrating the interest being taken by those high in executive authority, in the nation and the State, in highway transportation, President Wilson, President-elect Harding and Governors of practically all, if not all, States have expressed themselves strongly as to the importance of modern highways and that which moves over them. Senator Harding in December last said on this subject:

"One of the greatest economic problems, if not the greatest problem, of modern civilization is distribution. There can be no doubt of the position of the good-roads movement in the solution of the problem."

"I believe that Federal and State governments must not only put their shoulders to the wheel to create good roads, but they must insist on the maintenance of roads in good condition. A good road gone wrong is almost worse than no road."

"The roads we build in America must be built, first, for use in the distribution of products rather than for merely passenger riding. We must foster the use of motor trucks. We must build urban terminals for truck service to make new ties between communities and between city consumption and country production."

A telephone line to provide direct communication between Havana and Key West is to be established by the Cuban-American Telegraph Co., a permit for the laying of three telephone cables having been granted by the State Department. The cables will be about 100 miles long, and it is expected that the work will be completed this spring.

What Federal Aid Has Accomplished in Stimulating and Co-ordinating Highway Development

[The end of the five-year period during which Congress provided funds to carry out Federal Aid in highway construction has been reached. There is before the present Congress a bill extending Federal Aid and providing for an appropriation of \$100,000,000 a year for the next five years. While this bill is under discussion it is appropriate to review what has been accomplished in highway improvement under the Federal-aid plan.]

Recently Thomas H. MacDonald, Chief of the United States Bureau of Public Roads, delivered an address before State highway officials, in which he analyzed the progress and achievements made under Federal Aid. This analysis not only tells of the detailed facts of accomplishment, but it goes further and elaborates upon the broader lessons that should have been learned from this work and the effect which it has had upon stimulating and rendering more efficient transportation by highways in the country. The review is worthy of careful study by those having directly to do with this work, as well as by those who are interested, or should be, in the potentialities of an adequate highway system and the influence of improved roads upon every phase of our national life. For these reasons the review is published practically in its entirety.—Editor Manufacturers Record.]

By THOMAS H. MACDONALD, Chief United States Bureau of Public Roads, Washington, D. C.

Any standard of measurement that will actually indicate what has been accomplished under Federal aid, or, more properly, during the period that Federal aid has been effective, is not the standard of dollars made available or expended for highway purposes or the mileage of highways which has been built. Any conception which seeks to measure progress by these factors is wrong. Any State highway department which fails to sense a different problem than these is missing the main reason for its existence.

During the six-year period since 1914 an astonishing development of the motor vehicle has given us potentially the means for a great increase in our transportation facilities, but the availability of the motor vehicle for this purpose is contingent upon serviceable highways, not of any particular type or character of material, but highways over which, with the maximum public and private economy, motor vehicles in sufficient numbers to supply the highway transportation necessities of the nation may operate. This, in general, means continuous service, but not continuous service under maximum or peak loads. The extent to which such service is being and will be supplied is the true standard of measurement which should be applied to the past results and the future proposed programs. The motor vehicle, in combination with the improved highway, has added such a powerful influence to our civilization that we do not yet sense its potentialities. The increase in transportation facilities for the local and short haul afforded by this combination is destined to bring great changes in the conduct of the activities which go to make up the life of the whole nation and will have a far-reaching effect upon its development along every line. The results which have been so far accomplished in a relative sense are unimportant. Rather it is the way which they point toward the realization of great mileages of adequate highways, and by this test the outstanding development of this period is the sum total of modern highway legislation produced.

Legislation is the only vehicle through which the public can set in motion activities for its own use and advancement, and no great constructive policy can go forward without adequate authority from the public itself. Here the influence of the Federal Aid Act has been potent, and in the great amount of new legislation which has been set up as the law governing highway activities is the greatest result which has come largely as a direct consequence of the Federal Aid Act. It is conceivable that much legislation would have come in time, but the same amount of advanced legislation would not have resulted within a decade without this measure to stimulate and guide. Not only is the amount large, but there is a uniformity of principle which will mean larger results than had there been no standard in the principles in which the State Legislatures have shown confidence, and with which new legislation has conformed. In this five-year period there have been new laws providing State participation, State revenues, State highway systems and State supervision. Entirely new highway departments were established in five States, and in about twenty others the highway departments were reorganized and greatly strengthened to carry on the program set in motion by the Federal-aid appropriation. Thus in over half of the States new highway departments were added or those existing were

greatly strengthened, and in practically all the others some new legislation was enacted increasing the authority and available funds of the departments. Ten States by a State-wide vote have provided either for constitutional amendments or for State bond issues removing prohibitions and enabling these States to engage in highway improvement. By the passage of the Federal Aid Act the Federal Government, after a lapse of nearly 80 years, again assumed responsibility for highway construction, provided funds ample to carry on a large highway improvement program, and provided for general supervision through a Federal department that is a constant force for bringing up standards of engineering and construction in the work undertaken.

In order of next importance to the legislation provided for highway improvement is the development of the organizations necessary to carry on the work. The placing of large new responsibilities upon the State highway departments and the Federal Bureau of Public Roads has been followed not only by a growth of the central organizations of these departments, but by a systematic expansion of these departments covering the whole United States and extending down through each State until men responsible to these organizations are in immediate charge of all road work carried on through the co-operative funds. Activities of both the State and the Federal departments have been decentralized to facilitate procedure and to place the responsibility upon the men in actual conduct of the work so far as our experience has dictated advisable. The construction work proper has attracted many of the companies and individuals formerly engaged in other lines of construction activities, has brought into the highway building field a large number of men who are experienced in handling large work, and has made available a large amount of capital as well as equipment to carry on the work. It is quite true that these new contractors have come into the field at a very difficult time, and the experience of many has been discouraging, yet the past season has proved to many of these that the highway contracting field can and will be in the future a profitable field in which to be engaged. Many manufacturing companies have extended their lines of equipment and are engaged in the development of new devices which will prove effective in quantity production. During the past few years much attention has been given to the development of labor-saving devices because of conditions existing. Producers of road materials have established new plants, enlarged existing plants and prepared themselves to furnish a larger output of material for this purpose. An effort has been made by a very considerable number of these producers to standardize their product and to produce sizes and quality of material which the highway engineers are demanding. In addition to the contractors' organizations and equipment which have been made available, every State has profited largely from the distribution of war surplus materials and equipment, and there is now available sufficient equipment in each one to carry on road-building operations of a major character.

Summing up this period, the greatest results are undoubtedly shown by the amount of constructive legislation and the development of the engineering, construction, manufacturing and producing organizations, and the making available of a large amount of

State-owned equipment for both construction and maintenance purposes.

All of this progress has been time-consuming, and has been carried through at a most difficult period, but there has been produced a situation out of which, during the next few years, will come a larger production of roads than has yet been considered possible. There is not an indication which fails to confirm this viewpoint as to the future, yet during this same period the actual operations under the Federal Aid Act have been large. From the engineering and administrative standpoint, the following table indicates the progress by years of the project statements approved by the Secretary of Agriculture:

PROJECT STATEMENT APPROVED BY FISCAL YEARS.

Fiscal year.	Number.	Federal aid	States' share.	Estimated Total estimated cost.
1917.....	22	\$346,152	\$399,282	\$1,845,434
1918.....	557	15,478,090	25,575,111	41,053,201
1919.....	736	38,664,397	52,831,401	91,495,798
1920.....	1670	109,830,366	142,699,817	252,530,183
To October 31, 1920	501	24,198,610	40,599,480	64,798,090
Totals.....	3487	\$189,017,615	\$262,705,091	\$451,722,706

Because of the fact that the project agreements are not executed until after the engineering work has been completed, the projects financed and ready for taking bids, the following statement of project agreements executed is more indicative of the producing ability of the highway organizations:

PROJECT AGREEMENTS EXECUTED BY FISCAL YEARS.

Fiscal year.	Number.	Federal aid	States' share.	Estimated Total estimated cost.
1917.....	6	\$224,717	\$322,375	\$547,092
1918.....	218	5,558,458	8,581,481	14,239,939
1919.....	454	18,048,442	23,582,290	41,630,732
1920.....	1286	85,906,556	111,665,070	197,571,626
To October 31, 1920	393	23,745,415	33,324,573	57,069,988
Totals.....	2357	\$133,583,588	\$177,476,789	\$311,060,377

The extent of the development of the State and Federal highway organizations is well shown by contrasting the engineering output as indicated by the project agreements executed between the fiscal years 1917 and 1920. In 1917 six project agreements were executed; in 1920, 1286, more than 200 times as many. Project agreements in 1917 called for a total expenditure of \$547,092, of which \$224,717 was Federal aid. In 1920 the total estimated cost of projects was nearly \$200,000,000, of which \$86,000,000 was Federal aid, an increase of nearly 400 times the amount requested in 1917.

The construction record also is good. Prior to the fiscal year 1920 only 59 projects, comprising 293 miles and involving Federal aid in the amount of \$1,284,806, had been completed.

The fiscal year 1920 added to the list of completed projects 233 more, or nearly four times as many as had been completed up to the beginning of the year. These 233 projects involved 1384 miles and \$7,635,547 of Federal aid, so that the record of entirely completed projects at the end of the year was as follows:

Number of projects completed.....	292
Mileage of completed projects.....	1,677
Federal aid allotted to complete projects.....	\$8,920,353
Estimated total cost of completed projects.....	\$20,878,484

The above refers only to entirely completed projects. In addition to these, there were at the end of the fiscal year (June 30, 1920) 1835 more projects under construction, involving 14,940 miles, and Federal aid to the amount of \$103,925,094, the estimated total cost of these projects being \$241,977,217.

As these projects were reported at the end of the year as being 30 per cent complete in the aggregate, it follows that the work done on these uncompleted projects up to the end of the year would call for approximately 30 per cent of the Federal aid allotted to them, or \$31,174,732. This, added to the Federal aid expended on completed projects (\$8,920,353), gives a total equivalent expenditure of Federal aid up to the end of the fiscal year of \$40,095,085. At the end of the fiscal year 1919 the amount allotted for completed work was only \$4,658,749, so that the Federal aid allotted to work completed during the year was \$35,436,336.

But until the first of July, 1920, we had not yet caught our stride in construction work. In the face of the most serious shortage of rail transportation, between June 30 and October 31, 1920

additional projects were completed, or 37 more than had been completed in the four years preceding, making the total completed projects on October 31, 621.

The Federal aid and mileage, of course, were correspondingly increased, and in order to show the amount of the increase the several items are listed below for the two dates:

	June 30, 1920.	October 31, 1920.
Number of projects completed.....	292	621
Mileage of completed projects.....	1,677	3,191
Federal aid allotted to complete projects.....	\$8,920,353	\$20,990,011
Estimated total cost of completed projects.....	\$20,878,484	\$46,710,472

Notwithstanding the great increase in these items for completed projects, the corresponding items for the projects under construction on October 31 were not decreased, but largely increased. On that date there were 17,369 miles under construction, to which had been allotted \$121,322,198 of Federal aid. These projects were reported as 43 per cent complete in the aggregate; hence the equivalent Federal-aid expenditure upon them was \$51,844,586. This amount, added to Federal aid expended on completed projects, gives a total of \$72,744,600 as the equivalent of the Federal aid expended for completed work up to October 31.

Thus the work completed on October 31, 1920, has consumed, practically speaking, the whole amount of Federal aid appropriated up to February 28, 1919.

It will be noted that during the previous four months' period construction was completed requiring approximately \$32,000,000 from Federal-aid funds, or \$8,000,000 per month. The acceleration of the rate of construction will be large when highway building is operating under more favorable circumstances. It is now apparent, however, that conditions will vary widely between the States. As closely as can be approximated at this time, it appears that if freed from influences which have so hindered construction during the past season, particularly the lack of rail transportation, the rate of expenditure will be greatly increased, and by the end of the calendar year 1921 eight States will have expended the full amount of their Federal-aid apportionments; 20 more States will have expended or placed under contract all of their funds; five will have placed their funds under contract by the middle of the following year; 15 will have placed all of their work under contract by the end of the year 1922. The number of States in each of the above classes may vary somewhat, but the figures here given are based on the best evidence obtainable.

This situation should be clearly understood, because between 30 and 40 of the State Legislatures which meet biennially will be in session this winter, at which time questions affecting the future road-building programs should be settled. More than one year should be allowed to get the funds in the State treasuries after the legislation is enacted, and the highway organizations should know the amount of available funds for several years in advance to enable them to carry out the preliminary engineering and administrative work necessary for the inauguration of road-building projects.

While we are seriously suffering from a lack of improved roads, and our production of new roads up to the present year since 1916 has been small, it has been fortunate for the future stability of the road-building program that because of the limitations imposed there has been sufficient time to get the necessary engineering work done much more thoroughly than would have been possible had we gone hastily into a heavy construction program. So it would seem that conditions have worked out well in spite of the discouragements. We have come to see the immense task ahead, and the organizations which have succeeded in driving through actual construction in spite of the handicaps cannot fail to produce road mileage at an accelerated rate.

But the big important work, considering the general situation, is ahead, and as we go into the heavy construction program in all of the States we must face the immense physical task of transforming the funds which are provided into adequately built roads. There are certain phases in which our present legislation is weak. These weak points have already shown up, and should be eliminated in future legislation. It has become very apparent that those States which have provided State funds with which to meet the Federal-aid apportionments have less difficulty in exercising proper engineering control of the design and construction than those States in which the funds are largely provided by the counties or districts. In a number of States it has been necessary to

remove constitutional limitations before State funds could be appropriated for this purpose. There is no reason why local funds should not be used with State and Federal funds, but these should be made to augment the other funds.

Referring again to the standard of measurement by which results must be gauged, that is, the extent to which transportation is facilitated by highway improvement, the results of our observations as to the deterioration of roads and the intensive studies which have been carried on during the past year have demonstrated as never before the absolute necessity of adequate maintenance. In about 30 States the Federal-aid projects are maintained under the direct supervision of the State highway departments or the highway departments have funds to maintain the projects if the local authorities fail. In about 18 States the maintenance is under supervision of the local authorities. Probably the majority of those represented here will not question that a principle of any future Federal aid provided should be that the States as States should have control of the maintenance of the roads built under the co-operative funds. More than 40 of the States have established a system of main roads. These systems vary from a restricted mileage up to more than 10 per cent of the total mileage within the State. The aggregate mileage of the main systems is approximately 8 per cent of the total mileage of rural roads within the United States. Further classification of many of these systems is necessary in order that the construction of those roads of the greatest importance should be expedited. In order that there may be a systematic improvement of the highways, this classification should be carried forward, and the sequence of the improvement of the roads should within reason be justified by the relative uses which they serve. Only by properly laying out highway systems can the task of road improvement within any reasonable period be completed to an extent necessary to give the public adequate highway service.

There are other important features which the experience already acquired has pointed out. There should in many States be better standards adopted for the basic improvements, such as widths of graded roadway, alignment, grade crossing elimination and building of permanent drainage structures. The comprehensive studies of the relation of soils to road design, particularly

the studies which have co-ordinated surface failures with certain types of soils, have proved beyond doubt the great prominence which should be given soil studies in road designing. In general, more ample surface widths should be provided and greater attention given to the construction of shoulders. All of these are features which make for permanency of design, and the first cost, while greater, will be more than compensated by lesser expenditures for maintenance and reconstruction as our traffic grows heavier. Sufficient attention is not yet being given to the control of materials. The results which really count are the finished product. The materials used must be controlled through laboratory and field tests more adequately. To accomplish these results it seems highly desirable that there be a larger contact between the Federal and State forces. Up to the present time the Bureau of Public Roads has not succeeded in carrying out the amount of inspection originally planned because of difficulty in maintaining a sufficient organization. It seems probable that a larger number of engineers will be available during the coming year, and so far as possible the Bureau proposes to render greater assistance to the States in carrying on a large construction program.

This whole road movement has been conceived with the idea of providing adequate roadways for the movement of the highway traffic of the nation. We have not reached a stabilized character of traffic, particularly with reference to the limiting weights of the larger vehicles, and we should not plan the higher types of construction without allowing a considerable safety factor. Our scientific knowledge of the duty imposed upon highways has been largely increased during the past year, and in the face of facts secured it is evident that our highways in the vicinity of the larger centers of population must be more amply designed and more carefully constructed. No matter how true this is, we must not lose sight of the big fact that there are large areas where transportation over the highways is of the greatest importance to our producing population and where roads of the less costly type, particularly well built gravel roads, will amply serve the purposes if properly maintained. The building of highways is the means to an end, that of carrying most economically the traffic developed in communities served.

Subgrade a Major Consideration in Economical Construction of Permanent Highways

By H. G. SHIRLEY, Secretary Federal Highway Council, Washington, D. C.

It has been practically the custom in the past in building highways to design the surfacing of the road of a uniform thickness, known as "standard thickness." For instance, a concrete road would call for eight inches in the middle and six inches on the sides, and this thickness would be used throughout the length of the contract, the contract in many cases running anywhere from one to ten miles, without any consideration being given to the bearing power of the subgrade over the entire length. Yet it might happen that in the mile or ten miles the subgrade would run from gravel to sandy loam, and from sandy loam into clay, and this same condition might alternate off and on throughout the entire length. Obviously, the percentages of the different classes of soils would vary accordingly.

Experience has shown that where a road carrying practically a uniform traffic over its entire length has been constructed in such a manner, the greater number of failures occur over the clay subgrade. In fact, investigations show that on gravel and soils other than clay or adobe the failures amounted to something like 17 per cent, while on the adobe or clay soils failures ran up to 70-odd per cent, making something like 50 per cent more failures on the clay or adobe soils than on other classes. This would clearly show that there is some need for a thorough investigation of the subgrade or foundation of our highways, so that a road may be designed of uniform strength throughout rather than of uniform thickness.

Say the maximum load to be carried over a highway is 26,000 pounds; then plus a certain amount, not to exceed 10 per cent, for impact, we have determined the weight that will have to be

borne by the surfacing and subgrade. When we have found the bearing power of the subgrade, it will be easy to solve the problem and find the unknown quantity, namely, the thickness and strength of the surfacing material. This will not be a universal thickness throughout the entire length of the road, but as each type of soil over the entire stretch will have a different bearing power, the thickness of the slab will vary with the bearing capacity of the subgrade.

Therefore, the problem at once becomes the proper distribution of the materials so as to give a road that will carry traffic throughout its entire length, using a minimum amount of material to carry the maximum load, or it will mean the treatment of the subgrade in some manner, either mechanically or chemically, so as to raise its bearing power to such a point that we will have practically a uniform strength of subgrade throughout the entire length of the highway. It is this problem that the Subgrade Committee of the Federal Highway Council, in co-operation with the Bureau of Public Roads and the State highway departments, is endeavoring to solve, along with the assistance of a number of the leading universities of the country, such as Harvard, Yale, University of Maryland, Ohio University, University of Georgia, University of Michigan, University of California, Agricultural and Mechanical College of Virginia, University of Texas, University of Tennessee, and many other leading universities, laboratories, etc.

Experiments are being carried on by the Bureau of Public Roads, a number of these universities and many of the State highway departments to determine the treatment necessary to stabilize or improve the bearing power of the different classes of soils. A

thorough investigation is also being made of the classification of soils, their action under heat and cold, as well as their action due to absorption of water in different amounts, capillary action and other characteristics. Experiments in treating the soil along mechanical lines are being undertaken, as well as chemical treatments. Studies are being made of a variety of types of drainage systems, but along lines the reverse of those heretofore made. Formerly the water was taken away from the roadbed after it had once reached there. Experiments are now being conducted with a view to preventing its ever reaching the roadbed by taking it away before it has come in contact with any portion thereof. It has been found that if the subgrade or foundation of the roadbed can be kept dry, an exceedingly thin surface is capable of carrying a very heavy load, and it is the belief of the writer that much money can be saved not only in the thickness of the slab, but in the maintenance of the road after the work has been done.

Many of the road failures now occurring under heavy traffic, in the opinion of the writer, will be eliminated, and the annual maintenance charges greatly reduced by a proper distribution of the materials to meet the varying subgrade conditions. Uniform strength will be attained, and this strength having been determined, the proper control of the traffic using the highway can be put into effect. Not until this is done and the stabilization of the subgrade has been arrived at will it be possible in any way to specify the gross load or the speed that can be used on any highway with safety at all periods of the year.

This problem applies just as well to the railroad and electric railway as it does to the foundation of the highway, and it is therefore desirable that there be a co-ordinated effort in its solution. In many places railroads have to replace the ballast of their

roadbeds annually, due to failure of the subgrade on account of the unstable soil of which it is composed. Large amounts of money have been expended in experiments by the railroad and electric railway companies in trying to find out how the load is transmitted through the rail and tie down through the ballast to the subgrade, but little or no money has been expended on the investigation of the most important part of the entire structure, which is the subgrade itself. It has been assumed or guessed at, through experience and practice, that if we put down a certain thickness of ballast and place a tie of a certain area on that ballast, on which is spiked a rail of a certain area, it will carry a locomotive of a given weight at a certain speed. This is purely a "hit-or-miss plan," and the same plan on which the highways are being constructed. The railroad and the highway people interested in this problem should get together. Instead of having from 18 to 24 inches of ballast under the tie at certain points, 6 inches on certain soils would be sufficient, while on others, to properly stabilize the soil and give the road equal strength throughout, it would require at least 30 to 36 inches. The same applies equally as well to the surfacing of the highway.

It is the firm belief of the writer that if this problem is studied and proper experiments are carried on, some simple test will be found for the subgrade that will enable an inspector to determine the thickness of ballast or surfacing that should be used to support a given load. In doing this the thickness will vary from one class of soil to the other, but the ballast or surfacing will have a uniform strength, and millions of dollars will be saved annually in the construction of all classes of highways, railroads and electric railways, as well as their annual maintenance cost being greatly reduced.

Continuous, Dependable Service Over the Highways the Aim of Maryland Road Commission

By JOHN N. MACKALL, Chairman and Chief Engineer Maryland State Roads Commission, Baltimore, Md.

Road construction and road maintenance have unquestionably progressed greatly in the last 10 years, but has it always progressed along fundamentally sound lines? It is the writer's belief that it has not, and the highway engineers and the public generally are both to blame for this condition. They have both interested themselves in road construction and not in road service. The public, especially, has interested itself in types of construction, due in a certain sense to the fact that the public thinks it knows all there is to be known about road building. The public is primarily interested in road transportation and road service in its ability to go where it wants, when it wants, with reasonable comfort and perfect safety. If this is what the public needs and wants, it is what the highway officials should give.

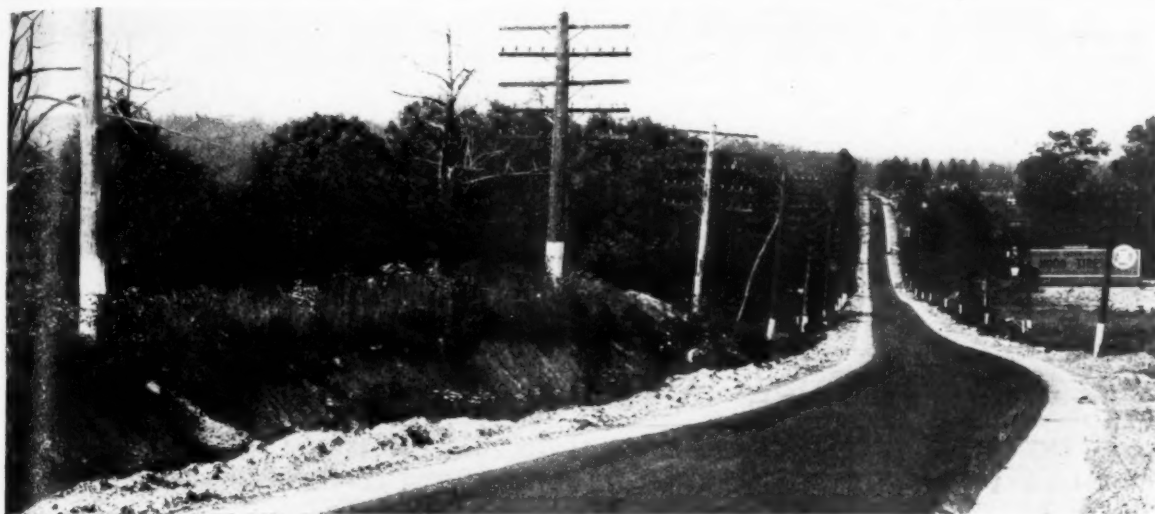
It has been Maryland's policy since the inception of highway improvement to render the most efficient and satisfactory road service for the least dollars, and to this end its policy has been, without exception, to maintain in perfect condition every road which has been built from a capital charge. No road once built from a bond issue has been permitted to go to pieces, so that reconstruction was necessary from another bond issue. Unhappily, this has not been the policy of all the States, and, unhappily, few States, if any, are in a position in which Maryland finds itself today.

Maryland has a State road system which connects every county-seat with every other county-seat, and every town of 1000 people is connected with every other town of similar or larger size by an improved highway maintained in perfect condition. Take, as an example, the main line of the National Pike, running from Baltimore through Frederick, Hagerstown and Cumberland to the Pennsylvania line. It was built of water-bound macadam 10 or 12 years ago at an average cost of but \$7000 per mile. It is being maintained to carry a very heavy traffic at a cost not in excess of \$800 per mile per year. With money at 4 per cent, the interest is \$280, which, added to the maintenance, makes a net cost of \$1080 per year. Suppose, then, this road had been permitted to go to pieces, and it most assuredly would have gone to pieces with-

out the most careful, painstaking and thorough maintenance, and it was necessary to reconstruct this of cement concrete today. Money cannot be had for less than 5 per cent, and concrete could not be constructed for less than \$30,000 per mile, so that the interest alone would be \$1500, without allowing anything for maintenance. The maintenance would probably run not less than \$300 per mile, so that the excess in cost would be almost an increase of 100 per cent over the present net cost.

With this as an illustration, are the State highway departments generally maintaining all roads which are in a condition to be maintained, or are they actually constructing concrete roads on old roads which could readily be maintained at a less net cost than the concrete roads which they are building? If so, a tremendous economic blunder is being made. Not only are they making the net costs of road service unnecessarily high, but they are compelling the traveling public to do without a road while a new road is being constructed, requiring the public to use detours, and generally put up with a most unsatisfactory character of road service. The writer believes that because of comparatively cheap construction the economic design has not always been considered, and that economic reasons have not determined when a road should be reconstructed and when maintained.

The most striking example of what can be done to maintain old roads of insufficient depth and insufficient thickness is found on the main line between Philadelphia and Washington through Baltimore. The section between Belair and Washington, a distance of more than 50 miles, has been widened from 12 and 14 feet to 20 feet by the construction of concrete shoulders on each side of the existing macadam, and in the process of widening the crown of the road has also been made to conform to modern standards. The old roads had a crown of three-quarters inch to the foot, which made the sides so steep that the traffic was forced to cling to the center of the road, because to get on the sides meant sliding to the shoulder and gutter. All traffic, therefore, concentrated in the center, except that as the volume of traffic increased it was necessary to pass other vehicles more frequently, which meant going over to the side and "chewing" off the edge of the macadam. The



SURFACE-TREATED MACADAM ROAD—WIDENED WITH CONCRETE SHOULDERS. AT NIGHT THE WHITE MARGINS ADD GREATLY TO THE SAFETY OF TRAVELERS.

concrete shoulders have been so constructed as to remedy this condition as well as to widen the road.

The surface of the shoulders is about two inches lower than the center of the road, and from two to five inches higher than the old surface of the macadam adjacent to the shoulders. The road surface has been brought up to the height of the shoulders by the addition of a wedge of bituminous macadam material, which has a depth of from two to five inches adjacent to the concrete, and tapers off to a featheredge at two to six feet from the shoulder.

This unusual construction has given eminent satisfaction. No difficulty whatever has been experienced in keeping the macadam in place. The concrete on the side prevents the spreading disintegration of the macadam, and the macadam is thickened on the edges, where it is normally weakest. Some of these sections have since been surface-treated over the entire width, and it is impossible now to tell which part of the surface is the original macadam and which is the section filled in. The method of treatment enabled traffic to use the road at all times during construction, and, best of all, resulted in a road surface which is satisfactorily carrying the heaviest of modern traffic without abandoning a dollar's worth of the original construction.

The principle of improving the roads of the system without interruption to traffic is one to which we try to adhere in all of our work, even when the old road is to be entirely reconstructed. When the new section of road is to be of concrete, we have adopted

the plan of building the surface in two longitudinal sections, with a joint running along the center. This form of construction was used on parts of the Washington-Baltimore road, several sections of which were completely destroyed during the spring of 1918. One-half of the 20-foot roadway was constructed at a time, allowing the traffic to use the other half of the road simultaneously with construction, first on the old roadbed, then on the new concrete. The two sections were tied together with one-quarter-inch round rods, four feet long, with one-half their length in each half of the pavement. They were spaced two feet center to center along the road.

Some difficulty was experienced at first in keeping the traffic from running against the projecting rods before the second section was laid, but this was overcome by laying old railroad ties or sticks of wood along the edge of the concrete to protect them. There has been no difficulty in maintaining the joint in the center of the road, as the 20-foot width permits traffic to travel on each side of the road instead of in the center. In fact, the joint has been of considerable advantage in an entirely unexpected way, in that it has apparently tended to divide the two streams of traffic and keep each to its proper side of the road. So satisfactory have been the results in this respect on this section of road that we have drawn a black line down the center of other concrete roads of this width to serve the same purpose.

The writer does not believe that it is possible to render satisfac-



WIDE CONCRETE ROADS BUILT IN TWO LONGITUDINAL SECTIONS WITH A JOINT IN THE CENTER PERMIT TRAFFIC TO BE TAKEN CARE OF WITHOUT DETOURS DURING CONSTRUCTION.

tory road service on low-type roads without a very complete system of maintenance. Success can be had in maintaining these roads only by seeing that no hole is permitted to remain in the surface for an appreciable length of time, and that every break of every kind occurring in the surface is immediately repaired. If the public would get the idea that it is interested in road service, and not in road construction, it will demand of the highway departments that every piece of road which can render road service is made to do so by the most careful, painstaking and perfect system of maintenance that can be designed.

The writer believes that no road of any kind can be maintained in perfect condition without the patrol system, without the use of the patrolman, the man with the pick and shovel, and he desires

to pay tribute to the man who has made Maryland's road system a model, the man with the pick and shovel.

Perhaps all the blame for the nation's policy of road construction as against road service is not attributable to the public, and perhaps not all to the several highway departments, and probably the proper distribution of this responsibility would be on a 50-50 basis.

The writer believes, in conclusion, that if the public will cease to interest itself in types of roads and interest itself in road service, soon the highway departments will bend their energies to road service instead of road construction, and that in the future no road which is capable of rendering a road service will be permitted to go to pieces to the extent that new construction and probably new types will be required.

Trailers in Highway Transport

HOW MOTOR TRUCKS ARE MADE MORE USEFUL AND PROFITABLE—DOUBLE TONNAGE HAULED WITHOUT INCREASING DESTRUCTIVE EFFECT ON IMPROVED HIGHWAYS.

By HARRY WILKIN PERRY, General Manager Trailer Manufacturers' Association, New York City.

Manufacturers in many different lines, confronted with the necessity of hauling large tonnages as cheaply as possible or of moving single objects of unusual size or weight by highway, are finding solution of their problems in the use of truck and trailer combinations. The trailer, as an auxiliary of the motor truck, is coming into widespread use from the factories of the Atlantic seaboard to the orchards of the Pacific coast and from the lumbering regions of the North to the oil fields and cotton plantations of the South. They increase the utility and economy of the truck in hundreds of different lines of industry, making it a more flexible hauling unit and adapting it to new fields of work.

Iron works and boiler factories often produce single castings, steel girders and boilers of a size and weight too great to be hauled on a motor truck alone. In the past it has been the practice to transport such objects with special wagons drawn by teams of 6 to 12 horses—a slow and expensive method that caused considerable traffic confusion. The new and improved way is to do the hauling with a motor truck and trailer.

Many funnel sections, uptakes and other special steel jobs for Emergency Fleet Corporation ships under construction at Delaware River shipyards were delivered with trucks and trailers by the David Lupton Sons Company of Philadelphia. Some of these jobs were considerably larger in all dimensions than the truck that pulled them, but the length and weight were divided between the truck and a three-ton four-wheeled trailer coupled to it.

Haulage of large boilers with trailers is of common occurrence. A recent example was the delivery of a 16,000-pound boiler from the railway station in Sumter, S. C., to the plantation of J. H.

Myers with a two-ton truck and three-ton trailer. The plantation mill was several miles from the railway station, and the owner, although he operates a large fleet of motor trucks, was stumped by this particular hauling job. He finally consulted a local trailer distributor, with the result that a two-wheel pole-trailer was coupled to one of his trucks and the boiler and 15 workmen were landed at the mill 30 minutes after the boiler was loaded. No special equipment was used, except the wooden skids for reinforcement.

Saving of loading time is of particular interest to lumber manufacturers because the making up of a load of boards, shingles, lath or trim requires a good deal of time. Competition by motor trucks against teams has been difficult in this field because of the custom in the lumber trade of leaving wagons at the mill or lumber yard to be loaded while drivers and horses were on the road with other wagons. Adoption of trailers and semi-trailer enabled the trade to continue this operating method, but to get the additional advantage of the superior speed, load capacity and endurance of the motor truck. Consequently, a larger number of trailers is used in the logging and lumber industry probably than in any one other line of business.

The lumber trade in New York city and its immediate vicinity is almost completely motorized, the number of trucks and trailers bought for this trade during the past year reaching well above the thousand mark. The New York lumber dealers have found that trailers and semi-trailers are not only time-savers, but are especially adapted to hauling in congested streets and places where there is limited space for shifting loads. Most of the trailers are

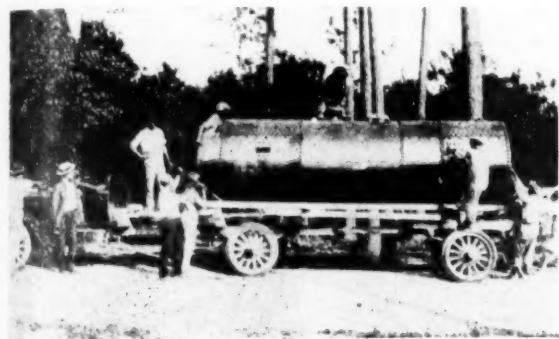


TYPICAL EXAMPLE OF OPERATING CONDITIONS IN THE TEXAS OIL FIELDS.

Hauling smokestack and pipe with pneumatic-tired truck and 3-ton pipe trailer. Large tires and distribution of weight avoid stalling.

fitted with hand-operated roll-offs, but a type of four-wheel trailer that is coming into use has a hinged frame that permits the load to be tilted until it rolls off at the rear by gravity.

Manufacturers of soft drinks have adopted trailers to take care of increased deliveries since the Eighteenth Amendment and the



Eight ton boiler loaded on a two-ton truck and three-ton pole trailer and hauled from Sumter, S. C., to plantation mill several miles distant.

Volstead Act gave a great boost to their industry. The Coca-Cola Company of Atlanta, the Chero-Cola Company of Birmingham and the Red Rock Company of Atlanta are well-known Southern companies that use trailers to double the capacity of their trucks. The Chero-Cola Company operates a fleet of 14 trucks and trailers, of two-ton capacity each, in connection with its large bottling plant.

Tank trailers of the four-wheel type are coming into use by oil and chemical companies. They are proving economical, because they double the load hauled at each trip of the truck and also because they save loading and unloading time. Truck and trailer tanks can be filled simultaneously and the trailer can be left at a garage or supply station to discharge its contents into an underground tank while the truck proceeds alone to the next station to be emptied. The trailer is picked up on the return trip.



HAULING TWELVE BALES OF COTTON WITH 1 1/2-TON TRUCK AND 1 1/2-TON TRAILER, USED ON 10-MILE HAUL OVER HILLY GRAVEL ROADS.

Nearly three-quarters of all hauling in the oil fields of Texas and Oklahoma is done with trucks and trailers. Hauling in the new fields presented a serious problem because of lack of roads, the almost bottomless mud in wet weather and the length and weight of oil-well materials, machinery, boilers and stills. Trailer manufacturers sent their engineers into the fields to study the conditions on the ground and to co-operate with oil-company engineers in designing special trailers for the work. The type of trailer most in use is the two-wheel pipe trailer, with adjustable reach and fitted with giant pneumatic tires. Boilers, loads of well-casing, etc., from 10 to 15 tons in weight are sometimes hauled with these trailers. During the past year one trailer company alone has supplied more than 1200 such trailers to the Texas, Oklahoma and Wyoming oil fields.

Where time of delivery is of great importance, as it is in the oil industry, the truck and trailer meet the emergency. An interest-

ing recent example occurred when the Skelly Oil Co. of Tulsa was in urgent need of 40 carloads of casing purchased in Youngstown, O., to continue well drilling to hold its leases and increase oil production. A railroad freight embargo prevented shipment of the casing, but the company had ordered 20 additional motor trucks from a Cleveland factory and arranged to put five trucks with trailers at work hauling casing from the Youngstown steel plant to Leavittsburg, 25 miles distant, where one or two freight cars were available at a time. Each two-ton truck and trailer outfit made two round trips of 50 miles a day, carrying five-ton loads of 6 1/2- and 8 1/4-inch casing, and an average of two freight cars a day were loaded and headed for Oklahoma or Texas. In all, 62 cars were loaded with the casing in three weeks, and the trucks and trailers then were driven overland 2000 miles to the oil fields, arriving in Tulsa in 14 days.

Cotton is, of course, one of the main products hauled in the South. The heavy crops raised in the years since the war broke out called for additional hauling equipment, and many trailers were impressed into the service. The ordinary four-wheel type is much used, but some special semi-trailers with low platforms to facilitate loading bales from the ground have been supplied. As



HAULING UPTAKE FOR 7000-TON SHIP WITH TRUCK AND ONE-WHEEL TRAILER IN PHILADELPHIA.

road conditions in the Southern States are improved under recent highway bond issue authorizations, the use of trailers will become more general, as any ordinary motor truck will be able to haul a second load equal to its own on a trailer.

In any line of business where there are large tonnages to be hauled the cost per ton-mile is least when the tonnage hauled per trip is largest. This is true in any field of transportation, and accounts for development of the 10,000-ton ocean freighter, the 100,000-pound freight car and the powerful locomotive that draws 50-car trains. It is also responsible for the tendency to use the largest sizes of motor trucks. There is both a mechanical and a



Underground storage tank weighing seven tons, hauled with a 2 1/2-ton army truck and 2-wheel pole trailer at Fort Worth, Texas.

legal limit to the size of truck that can be used, however. From seven to eight tons is the limit of load capacity of the largest trucks built in standard models, and, in the present state of the motor-vehicle art, these sizes are the largest that show any economy in hauling cost. A number of States, however, to preserve improved roads, prohibit the use of trucks of more than four or five tons capacity or limit the total weight of truck and load to 20,000 or 25,000 pounds, which is equivalent to limiting the payload to five or six tons.

Loads of double this tonnage can be hauled by single power units drawing trailers without violating the laws or doing any more injury to the roads than when loads of five or six tons are transported on single trucks. The total weight is distributed over six or eight wheels instead of being concentrated mainly on the two drive wheels of a truck. On a hard, smooth, level road two loaded trailers are not infrequently drawn by a single truck, thus tripling the tonnage per trip.

Not only do trailers help preserve improved roads by better weight distribution, avoidance of truck overloading and encouraging use of smaller tractive units because of the economy resulting from the use of trailers and semi-trailers with light and medium-sized trucks, but they are also employed extensively in new road building and in road maintenance. Slow-speed, bottom-dump trailers are built especially for this work, to be drawn in trains of three to six or more by traction engines or crawler-tread tractors. As each trailer has a capacity of three to five tons, a total of 15 to 30 tons or more of earth, rock, crushed stone, gravel or other material is hauled at each trip, the speed ranging from three to six miles an hour. The trailers can be coupled up at either end and run in either direction, avoiding the necessity of

turning around, and every trailer in the train follows in the tracks of the towing vehicle when rounding short turns. This is the cheapest possible highway haulage method, and is used in logging operations and on plantations as well as in road construction.

A dozen or more cities in the United States now employ the trailer-train system for garbage and ash removal, and a number of others are investigating with a view to its adoption. Norfolk, Memphis and Dallas have already put it into effect in the South, and Philadelphia and Savannah have been trying it out on a limited scale. In this work reversible drop-frame trailers equipped with side-dump steel bodies and fitted with rubber tires are used. Briefly, the method followed is to hitch a team of horses to each trailer and drive from house to house to collect their loads. When filled, they are driven to a central point in their respective zones in the city. Here they are met by a truck with three or four empty trailers. The loaded trailers are coupled into a train and hauled by the truck or tractor to the city incinerator, as in Memphis; to the city dump, as in Cleveland, or to a pig farm several miles outside of the city, as in Utica, N. Y. While the train is on the way the teams have been hitched to the empties and continue the work of collection. Thus the teams and the trucks are used in their fields of greatest efficiency, the trucks hauling 12 to 15 tons per trip on the long hauls and being continuously operated at a speed of 8 to 10 miles an hour.

There is hardly any line of business that requires haulage or delivery by highway that is not using trailers in some of their varied types and sizes. Almost every week sees some new application, notwithstanding trailers are already used in several hundred different lines of manufacturing, commerce, agriculture, mining, lumbering and passenger transportation.

Outstanding Features of American Road Builders' Annual Congress and Exhibition in Chicago Next Month

A well-rounded program has been developed for the big good-roads congress and exhibition to be held in Chicago February 9-12 under the auspices of the American Road Builders' Association. The important, fundamental phases of road building will receive prominent attention during the meetings. Chiefly among the topics to be discussed will be those covering the continuation of Federal aid, the relation of highways to education, the part which highways are playing in the development of transportation, research work looking to the improvement of highway design and construction, the financing of highway work, and the improvement of relations between engineers and contractors engaged in road building.

This association forms the common meeting ground where all those who are interested in all phases of road-building work can come together and discuss their problems and work out the best plans under which to operate.

For the second time in its history the Federal Bureau of Public Roads will make an elaborate exhibit outside the national capital. The feature of this Government exhibit will be actual demonstrations by the Division of Tests in the conduct of the impact tests that the bureau is using to determine the ability of different soils to sustain roads and to measure the amount of wear on road surfaces caused by heavy traffic. Owing to the fact that moisture in the underlying soil is the principal cause of road failures, the actual subgrade tests and investigations which will also be conducted by the bureau at Chicago, showing how the movement of water in different soils can be controlled and road failures reduced, will be a big feature. The bureau will also conduct tests on road-building materials.

In addition to this important exhibit, all the principal manufacturers of materials, equipment and supplies that enter into road building will have booths to bring out and emphasize the merits and advantages of their particular products. These manufacturers always send to these exhibitions their technical men, as well as sales representatives, thus giving public officials and engineers an opportunity of discussing with these specialists the technical phases of the different materials that are offered for highway improvement. Thus a splendid opportunity is offered to those in charge of road work to thoroughly and carefully investigate materials and machinery in their latest development

and gauge the possibilities of applying these to their own undertakings.

This year will undoubtedly prove to be one of the most active the country has ever seen in highway construction. Many of the difficulties that held back this work during the past several years have been partially or wholly overcome, so that the hundreds of millions of dollars that are available to carry on this work will undoubtedly be used for a greater volume of road building in 1921 than any single year has heretofore witnessed.

This situation makes this year's meeting of the Road Builders' Association all the more important and offers the authorities in charge an opportunity for investigation of materials and equipment and intercourse with others that will be found of value and assistance in many directions in planning their own work. In the light of these facts it is believed that the attendance, both in quantity and quality, will be one of the largest in the history of the association. The tentative program as outlined is as follows:

TENTATIVE PROGRAM.

Wednesday, February 9, 1921.
9 A. M.

Registration of delegates and distribution of programs and badges. Entire day. Headquarters, Chicago Coliseum.

FIRST SESSION.

Convention Hall, Coliseum.
10 A. M.

H. L. Bowlby, Chief War Materials Division, United States Bureau of Public Roads, Washington, D. C., presiding.

Meeting called to order by the President of the American Road Builders' Association, M. J. Faherty, Chicago, Ill.

Invocation.

Announcement of Convention Committees.

"Our National Road Problems"—Thomas H. MacDonald, Chief United States Bureau of Public Roads, Washington, D. C.

"Relation of the Highway and Motor Transport Movement to Education"—Prof. C. J. Tilden, National Director of Highway and Highway Transport Education, Washington, D. C.

"Highway Improvements in New England"—A. W. Dean, Chief Engineer Division of Highways, Massachusetts Department of Public Works.

"The Local and National Importance of the Lee Highway"—Dr. S. M. Johnson, Manager Lee Highway Association, Roanoke, Va.

RECESS.

SECOND SESSION.

Convention Hall, Coliseum.
2 P. M.

George C. Diehl, County Engineer, Erie county, New York, presiding.
"The Highway's Part in the Development of Efficient Transportation"—C. W. Reid, Chairman Transportation Committee, Federal Highway Council, Washington, D. C.

Discussion—T. J. Wasser, State Highway Engineer of New Jersey.

RECESS.

MASS-MEETING.

Medinah Temple.
8 P. M.

Michael J. Faherty, President American Road Builders' Association, presiding.

Musical Program—Great Lakes Naval Training Station Band.

Address of Welcome on Behalf of the City of Chicago—Hon. William Hale Thompson, Mayor of Chicago.

"Highway Researches and What the Results Indicate"—A. T. Goldbeck, Chief Division of Tests, United States Bureau of Public Roads, Washington, D. C.

Discussion—Anson W. Marston, Dean Iowa State College.

EVENING ENTERTAINMENT.

Dinner and dance in the Gold Room at the Congress Hotel.

FIFTH SESSION.

Convention Hall, Coliseum.

Friday, February 11, 1921.

10 A. M.

Frank F. Rogers, State Highway Commissioner of Michigan, presiding.

"Recent Developments in Road Building"—Edward N. Hines, Chairman of Board County Commissioners, Wayne county, Michigan; W. D. Uhler, Chief Engineer Pennsylvania State Highway Department; R. Keith Compton, Chairman Baltimore Paving Commission.

RECESS.

The Manufacturers Record extends a cordial invitation to its readers, advertisers and friends to visit its booth at the American Road Builders' Exhibition in the Coliseum, Chicago, February 9-12.

Response on Behalf of the American Road Builders' Association—Michael J. Faherty, President.

"Good Roads Movies."

THIRD SESSION.

Convention Hall, Coliseum.

Thursday, February 10, 1921.

10 A. M.

C. M. Upham, Chief Engineer Delaware State Highway Department, presiding.

"Subgrades"—H. G. Shirley, Secretary Federal Highway Council, Washington, D. C.

Discussion—Clifford Older, Chief Highway Engineer of Illinois, and others.

"Importance of Drainage in Road Construction"—F. H. Eno, Professor of Engineering, Ohio State University.

Discussion—H. S. Mattimore, Assistant Engineer Pennsylvania State Highway Department, and others.

RECESS.

FOURTH SESSION.

Convention Hall, Coliseum.

2 P. M.

J. A. Duchastel, City Manager Outremont, Canada, presiding.

"Types of Pavements"—James H. MacDonald, former State Highway Commissioner of Connecticut, New Haven, Conn.

Discussion—Newell D. Darlington, Chairman California State Highway Commission, and Herbert Nunn, State Highway Engineer of Oregon.

SIXTH SESSION.

Convention Hall, Coliseum.

2 P. M.

Howard F. Beebe, President Harris, Forbes & Co., New York city, presiding.

"Highway Finance"—H. C. Sylvester, Vice-President National City Company, New York city.

Discussion—H. P. Gillette, Editor Engineering and Contracting; S. E. Bradt, Superintendent of Highways, Department of Public Works and Buildings, Springfield, Ill.

EVENING ENTERTAINMENT.

Theater Party at two of Chicago's Leading Theaters.

SEVENTH SESSION.

Convention Hall, Coliseum.

Saturday, February 12, 1921.

10 A. M.

Walter A. Rogers of Bates & Rogers, Chicago, Ill., President Associated General Contractors, presiding.

"Relation Between Engineers and Contractors"—D. A. Garber, President North Eastern Construction Co., New York city.

Discussion—R. G. Collins, Keystone Construction Co.; A. R. Hirst, State Highway Engineer of Wisconsin.

RECESS.

EIGHTH SESSION.

Convention Hall, Coliseum.

2 P. M.

Question Box.
Report of Resolutions Committee.
Election of Nominating Committee.
Unfinished Business.
Adjournment.

Good Roads Association to Meet at Greensboro, N. C.

Birmingham, Ala., January 24—[Special.]—Governor Chas. H. Brough, president, and J. A. Rountree, director-general, of the United States Good Roads Association have issued an official call that the Ninth Annual Convention of the United States Good Roads Association will meet in Greensboro, N. C., April 18 to April 23, inclusive.

All organizations interested in good roads have been requested to appoint delegates that will attend this convention, which promises to be the most important since the good-roads agitation was started.

The Bankhead Federal-aid appropriation will cease in June if Congress does not re-enact the measure. This convention will take steps to urge Congress to pass the measure. Action endorsing a system of national highways will be taken.

In connection with the meeting the United States Good Roads Exhibit will be held. Many new types of road-building machinery and highway transportation equipment, road materials, machinery and equipment used in the construction and maintenance of roads and pavements will be shown. A select number of automobiles, trucks and tractors will also be shown.

The Road Department at Washington is expected to have an exhibit that is worthy of the Government.

During "Good Roads Week" the Bankhead National Highway Association, which has members in 13 States, will hold its fifth annual meeting in Greensboro. This association will have at least 1000 delegates in attendance. Invitations have been extended to other highway and subsidiary organizations to hold meetings and conferences during the week.

Director-General Rountree, who has charge of the executive affairs of the United States Good Roads Association and the Bankhead National Highway Association, will go to Greensboro, N. C., early in February with a staff of assistants and open headquarters, where he will remain for the next 90 days promoting these three great meetings.

Governor Brough, president of the United States Good Roads Association, expects to visit a number of the Governors in more than a dozen States, personally inviting them to attend the convention and deliver addresses, also to see that good delegations attend the meeting from their respective States.

Complete North Carolina County Road.

Winston-Salem, N. C., January 22—[Special.]—Work has been completed on the 5.87-mile stretch of road between this place and Chalk Level, and the road opened to traffic. The work of grading and resurfacing was done by C. B. Hester of Greensboro, under supervision of the State Highway Department, and built according to standard specifications. The graded road is 30 feet wide between ditches, while the portion surfaced is 16 feet wide. One of the features of the project is an arch span over Lowrey's Creek having a clear span of 70 feet. It was built of reinforced concrete upon a solid rock foundation by the Luten Bridge Co. of Indianapolis. The cost of the entire project, including the bridge, amounted to approximately \$47,880. It opens up a rich agricultural section, and makes it possible for the farmers along the road to carry their products to market with greater facility.

legal limit to the size of truck that can be used, however. From seven to eight tons is the limit of load capacity of the largest trucks built in standard models, and, in the present state of the motor-vehicle art, these sizes are the largest that show any economy in hauling cost. A number of States, however, to preserve improved roads, prohibit the use of trucks of more than four or five tons capacity or limit the total weight of truck and load to 20,000 or 25,000 pounds, which is equivalent to limiting the payload to five or six tons.

Loads of double this tonnage can be hauled by single power units drawing trailers without violating the laws or doing any more injury to the roads than when loads of five or six tons are transported on single trucks. The total weight is distributed over six or eight wheels instead of being concentrated mainly on the two drive wheels of a truck. On a hard, smooth, level road two loaded trailers are not infrequently drawn by a single truck, thus tripling the tonnage per trip.

Not only do trailers help preserve improved roads by better weight distribution, avoidance of truck overloading and encouraging use of smaller tractive units because of the economy resulting from the use of trailers and semi-trailers with light and medium-sized trucks, but they are also employed extensively in new road building and in road maintenance. Slow-speed, bottom-dump trailers are built especially for this work, to be drawn in trains of three to six or more by traction engines or crawler-tread tractors. As each trailer has a capacity of three to five tons, a total of 15 to 30 tons or more of earth, rock, crushed stone, gravel or other material is hauled at each trip, the speed ranging from three to six miles an hour. The trailers can be coupled up at either end and run in either direction, avoiding the necessity of

turning around, and every trailer in the train follows in the tracks of the towing vehicle when rounding short turns. This is the cheapest possible highway haulage method, and is used in logging operations and on plantations as well as in road construction.

A dozen or more cities in the United States now employ the trailer-train system for garbage and ash removal, and a number of others are investigating with a view to its adoption. Norfolk, Memphis and Dallas have already put it into effect in the South, and Philadelphia and Savannah have been trying it out on a limited scale. In this work reversible drop-frame trailers equipped with side-dump steel bodies and fitted with rubber tires are used. Briefly, the method followed is to hitch a team of horses to each trailer and drive from house to house to collect their loads. When filled, they are driven to a central point in their respective zones in the city. Here they are met by a truck with three or four empty trailers. The loaded trailers are coupled into a train and hauled by the truck or tractor to the city incinerator, as in Memphis; to the city dump, as in Cleveland, or to a pig farm several miles outside of the city, as in Utica, N. Y. While the train is on the way the teams have been hitched to the empties and continue the work of collection. Thus the teams and the trucks are used in their fields of greatest efficiency, the trucks hauling 12 to 15 tons per trip on the long hauls and being continuously operated at a speed of 8 to 10 miles an hour.

There is hardly any line of business that requires haulage or delivery by highway that is not using trailers in some of their varied types and sizes. Almost every week sees some new application, notwithstanding trailers are already used in several hundred different lines of manufacturing, commerce, agriculture, mining, lumbering and passenger transportation.

Outstanding Features of American Road Builders' Annual Congress and Exhibition in Chicago Next Month

A well-rounded program has been developed for the big good-roads congress and exhibition to be held in Chicago February 9-12 under the auspices of the American Road Builders' Association. The important, fundamental phases of road building will receive prominent attention during the meetings. Chiefly among the topics to be discussed will be those covering the continuation of Federal aid, the relation of highways to education, the part which highways are playing in the development of transportation, research work looking to the improvement of highway design and construction, the financing of highway work, and the improvement of relations between engineers and contractors engaged in road building.

This association forms the common meeting ground where all those who are interested in all phases of road-building work can come together and discuss their problems and work out the best plans under which to operate.

For the second time in its history the Federal Bureau of Public Roads will make an elaborate exhibit outside the national capital. The feature of this Government exhibit will be actual demonstrations by the Division of Tests in the conduct of the impact tests that the bureau is using to determine the ability of different soils to sustain roads and to measure the amount of wear on road surfaces caused by heavy traffic. Owing to the fact that moisture in the underlying soil is the principal cause of road failures, the actual subgrade tests and investigations which will also be conducted by the bureau at Chicago, showing how the movement of water in different soils can be controlled and road failures reduced, will be a big feature. The bureau will also conduct tests on road-building materials.

In addition to this important exhibit, all the principal manufacturers of materials, equipment and supplies that enter into road building will have booths to bring out and emphasize the merits and advantages of their particular products. These manufacturers always send to these exhibitions their technical men, as well as sales representatives, thus giving public officials and engineers an opportunity of discussing with these specialists the technical phases of the different materials that are offered for highway improvement. Thus a splendid opportunity is offered to those in charge of road work to thoroughly and carefully investigate materials and machinery in their latest development

and gauge the possibilities of applying these to their own undertakings.

This year will undoubtedly prove to be one of the most active the country has ever seen in highway construction. Many of the difficulties that held back this work during the past several years have been partially or wholly overcome, so that the hundreds of millions of dollars that are available to carry on this work will undoubtedly be used for a greater volume of road building in 1921 than any single year has heretofore witnessed.

This situation makes this year's meeting of the Road Builders' Association all the more important and offers the authorities in charge an opportunity for investigation of materials and equipment and intercourse with others that will be found of value and assistance in many directions in planning their own work. In the light of these facts it is believed that the attendance, both in quantity and quality, will be one of the largest in the history of the association. The tentative program as outlined is as follows:

TENTATIVE PROGRAM.

Wednesday, February 9, 1921.

9 A. M.

Registration of delegates and distribution of programs and badges. Entire day. Headquarters, Chicago Coliseum.

FIRST SESSION.

Convention Hall, Coliseum.

10 A. M.

H. L. Bowlby, Chief War Materials Division, United States Bureau of Public Roads, Washington, D. C., presiding.

Meeting called to order by the President of the American Road Builders' Association, M. J. Faherty, Chicago, Ill.

Invocation.

Announcement of Convention Committees.

"Our National Road Problems"—Thomas H. MacDonald, Chief United States Bureau of Public Roads, Washington, D. C.

"Relation of the Highway and Motor Transport Movement to Education"—Prof. C. J. Tilden, National Director of Highway and Highway Transport Education, Washington, D. C.

"Highway Improvements in New England"—A. W. Dean, Chief Engineer Division of Highways, Massachusetts Department of Public Works.

"The Local and National Importance of the Lee Highway"—Dr. S. M. Johnson, Manager Lee Highway Association, Roanoke, Va.

RECESS.

SECOND SESSION.

Convention Hall, Coliseum.
2 P. M.

George C. Diehl, County Engineer, Erie county, New York, presiding.
"The Highway's Part in the Development of Efficient Transportation"—C. W. Reid, Chairman Transportation Committee, Federal Highway Council, Washington, D. C.
Discussion—T. J. Wasser, State Highway Engineer of New Jersey.

MASS-MEETING.

Medinah Temple.
8 P. M.

Michael J. Faherty, President American Road Builders' Association, presiding.
Musical Program—Great Lakes Naval Training Station Band.
Address of Welcome on Behalf of the City of Chicago—Hon. William Hale Thompson, Mayor of Chicago.

"Highway Researches and What the Results Indicate"—A. T. Goldbeck, Chief Division of Tests, United States Bureau of Public Roads, Washington, D. C.

Discussion—Anson W. Marston, Dean Iowa State College.

EVENING ENTERTAINMENT.

Dinner and dance in the Gold Room at the Congress Hotel.

FIFTH SESSION.

Convention Hall, Coliseum.
Friday, February 11, 1921.
10 A. M.

Frank F. Rogers, State Highway Commissioner of Michigan, presiding.
"Recent Developments in Road Building"—Edward N. Hines, Chairman of Board County Commissioners, Wayne county, Michigan; W. D. Uhler, Chief Engineer Pennsylvania State Highway Department; R. Keith Compton, Chairman Baltimore Paving Commission.

RECESS.

The Manufacturers Record extends a cordial invitation to its readers, advertisers and friends to visit its booth at the American Road Builders' Exhibition in the Coliseum, Chicago, February 9-12.

Response on Behalf of the American Road Builders' Association—Michael J. Faherty, President.
"Good Roads Movies."

THIRD SESSION.

Convention Hall, Coliseum.
Thursday, February 10, 1921.
10 A. M.

C. M. Upham, Chief Engineer Delaware State Highway Department, presiding.
"Subgrades"—H. G. Shirley, Secretary Federal Highway Council, Washington, D. C.

Discussion—Clifford Older, Chief Highway Engineer of Illinois, and others.

"Importance of Drainage in Road Construction"—F. H. Eno, Professor of Engineering, Ohio State University.

Discussion—H. S. Mattimore, Assistant Engineer Pennsylvania State Highway Department, and others.

RECESS.

FOURTH SESSION.

Convention Hall, Coliseum.
2 P. M.

J. A. Duchastel, City Manager Outremont, Canada, presiding.

"Types of Pavements"—James H. MacDonald, former State Highway Commissioner of Connecticut, New Haven, Conn.

Discussion—Newell D. Darlington, Chairman California State Highway Commission, and Herbert Nunn, State Highway Engineer of Oregon.

SIXTH SESSION.

Convention Hall, Coliseum.
2 P. M.

Howard F. Beebe, President Harris, Forbes & Co., New York city, presiding.

"Highway Finance"—H. C. Sylvester, Vice-President National City Company, New York city.

Discussion—H. P. Gillette, Editor Engineering and Contracting; S. E. Bradt, Superintendent of Highways, Department of Public Works and Buildings, Springfield, Ill.

EVENING ENTERTAINMENT.

Theater Party at two of Chicago's Leading Theaters.

SEVENTH SESSION.

Convention Hall, Coliseum.
Saturday, February 12, 1921.
10 A. M.

Walter A. Rogers of Bates & Rogers, Chicago, Ill., President Associated General Contractors, presiding.

"Relation Between Engineers and Contractors"—D. A. Garber, President North Eastern Construction Co., New York city.

Discussion—R. G. Collins, Keystone Construction Co.; A. R. Hirst, State Highway Engineer of Wisconsin.

RECESS.

EIGHTH SESSION.

Convention Hall, Coliseum.
2 P. M.

Question Box.
Report of Resolutions Committee.
Election of Nominating Committee.
Unfinished Business.
Adjournment.

Good Roads Association to Meet at Greensboro, N. C.

Birmingham, Ala., January 24—[Special.]—Governor Chas. H. Brough, president, and J. A. Rountree, director-general, of the United States Good Roads Association have issued an official call that the Ninth Annual Convention of the United States Good Roads Association will meet in Greensboro, N. C., April 18 to April 23, inclusive.

All organizations interested in good roads have been requested to appoint delegates that will attend this convention, which promises to be the most important since the good-roads agitation was started.

The Bankhead Federal-aid appropriation will cease in June if Congress does not re-enact the measure. This convention will take steps to urge Congress to pass the measure. Action endorsing a system of national highways will be taken.

In connection with the meeting the United States Good Roads Exhibit will be held. Many new types of road-building machinery and highway transportation equipment, road materials, machinery and equipment used in the construction and maintenance of roads and pavements will be shown. A select number of automobiles, trucks and tractors will also be shown.

The Road Department at Washington is expected to have an exhibit that is worthy of the Government.

During "Good Roads Week" the Bankhead National Highway Association, which has members in 13 States, will hold its fifth annual meeting in Greensboro. This association will have at least 1000 delegates in attendance. Invitations have been extended to other highway and subsidiary organizations to hold meetings and conferences during the week.

Director-General Rountree, who has charge of the executive affairs of the United States Good Roads Association and the Bankhead National Highway Association, will go to Greensboro, N. C., early in February with a staff of assistants and open headquarters, where he will remain for the next 90 days promoting these three great meetings.

Governor Brough, president of the United States Good Roads Association, expects to visit a number of the Governors in more than a dozen States, personally inviting them to attend the convention and deliver addresses, also to see that good delegations attend the meeting from their respective States.

Complete North Carolina County Road.

Winston-Salem, N. C., January 22—[Special.]—Work has been completed on the 5.87-mile stretch of road between this place and Chalk Level, and the road opened to traffic. The work of grading and resurfacing was done by C. B. Hester of Greensboro, under supervision of the State Highway Department, and built according to standard specifications. The graded road is 30 feet wide between ditches, while the portion surfaced is 16 feet wide. One of the features of the project is an arch span over Lowrey's Creek having a clear span of 70 feet. It was built of reinforced concrete upon a solid rock foundation by the Luten Bridge Co. of Indianapolis. The cost of the entire project, including the bridge, amounted to approximately \$47,880. It opens up a rich agricultural section, and makes it possible for the farmers along the road to carry their products to market with greater facility.

Millions for Highways in Southern States

The sixteen Southern and Southwestern States continue to show a determination to build and extend their highway systems. During the years we were at war, and those immediately following, conditions in the way of inadequate transportation, coupled with high prices of labor and materials, caused considerable road building to be held in abeyance. The situation has materially improved, and the outlook is most promising for 1921, the year becoming, perhaps, the most active in highway development that this section has ever witnessed.

To gather definite information as to the activities under way or planned, the State highway departments of the South were asked to supply concise but comprehensive statements as to the situation in their respective States. These statements, which follow, indicate the broad scope of work planned in so far as it comes under the State highway departments; but, in addition, many other millions for road work are made available by county appropriations, full information about which is not available, but when added to State and Federal-aid funds create a tremendous sum of many millions which the South has available or authorized for carrying on highway improvements.

Alabama Road Work Completed in 1920 and Proposed Construction for 1921.

By W. S. KELLER, State Highway Engineer, Montgomery, Ala.

The tables below give a summary of work done in 1920 and estimated work for 1921. The estimate for 1921 is very conservative, chances are it will be increased by several million dollars.

A test case has been filed in court to clarify the legality of our \$25,000,000 bond issue. Our Supreme Court will probably hand down a decision in the matter before February 1. This State is very fortunate in not having awarded any great amount of road work under prevailing prices of last year. We look forward to this year being the greatest year in road building that we have ever had.

ESTIMATED CONSTRUCTION DURING THE YEAR 1921.

BITUMINOUS MACADAM.

Project No.	County.	Length in miles.	Estimated cost.	State's share.
82	Cullman	8.02	\$219,273.17	\$109,636.58
80	Cosa	13.50	367,771.25	183,885.62
88	Marshall	18.88	563,266.55	281,633.27
83	Morgan	10.10	298,505.35	149,252.68
87	Limestone	14.62	372,182.25	186,091.13
Total		65.12	\$1,820,988.57	\$910,499.28

GRAVEL ROADS.

Project No.	County.	Length in miles.	Estimated cost.	State's share.
86	Elmore	6.95	\$302,851.00	\$101,425.50
80	Lauderdale	12.05	156,885.34	78,442.67
82	Macon	20.50	379,773.35	189,886.67½
81	Mobile	14.00	214,898.73	107,449.36½
74	Montgomery	11.18	187,399.08	93,699.54
83	Monroe	20.82	155,415.70	77,707.85
76	Sumter	17.39	304,223.08	152,111.84
62	Talladega	23.00	332,472.03	166,236.02½
95	Tuscaloosa	25.22	545,545.88	272,772.94
75	Wilcox	12.42	206,873.48	103,436.74
86	Escambia	20.52	359,706.87	179,853.43½
Total		183.85	\$3,046,045.14	\$1,523,022.58

SAND-CLAY ROADS.

Project No.	County.	Length in miles.	Estimated cost.	State's share.
77	Chambers	16.80	\$127,019.75	\$63,509.87
81	Coffee	26.20	242,106.70	121,063.35
80	Geneva	24.19	170,068.25	85,034.13
Total		67.19	\$539,194.70	\$269,597.35

ASPHALT PAVEMENT.

Project No.	County.	Length in miles.	Estimated cost.	State's share.
71	Dallas	4.11	\$124,558.50	\$62,279.25

CONCRETE AND STEEL BRIDGE.

Project No.	County.	Bridge	Estimated cost.	State's share.
85	Montgomery		\$162,932.56	\$31,466.28
Total mileage				320.27
Total estimated cost, including bridge				\$5,693,729.47
Total State's share, including bridge				2,706,804.72

MILEAGE COMPLETED DURING 1920.

	Total cost.
19.54 miles of asphalt pavement on concrete base	\$83,165.68
29.93 miles of gravel and chert roads	160,204.47
86.45 miles of sand-clay roads	492,326.17
3.19 miles of road graded	49,827.25
Concrete bridge finished during 1920 (paid out during 1920)	55,000.00
Total amount expended	\$1,820,988.57

MILEAGE UNDER CONSTRUCTION JANUARY 1, 1921—CONTRACTS CARRIED OVER FROM 1920.

Asphalt pavement on concrete base	4.11 miles
Gravel roads	79.49 miles
Sand-clay roads	67.50 miles

Extensive Highway Work in Arkansas in 1921.

By E. N. Todd, Office Engineer, Department of Highways, Oklahoma City, Okla.

In Arkansas 43 Federal-aid projects are now under construction or will be placed under contract during the year 1921, which will involve an expenditure of about \$12,500,000. We have available from the Federal Government \$3,950,000. A bill is now pending in the State Legislature appropriating \$6,500,000 for State-aid road construction. There will probably be available for construction purposes from the counties \$4,000,000. We



FEDERAL-AID PROJECT NO. 24, CHICOT COUNTY, ARKANSAS. ASPHALTIC CONCRETE ON A CONCRETE BASE. (Part of a 150-mile project being constructed at a cost of \$2,300,000.)

expect to grade to a high standard 5000 miles of earth road and construct the necessary permanent drainage structures for same. We plan to surface 250 miles during the year.

The construction of all Federal-aid and State-aid roads are under the direct supervision of the State Highway Department. Plans are approved by the State Highway Department for the



FEDERAL-AID PROJECT NO. 5, LAWRENCE COUNTY, ARKANSAS. GRAVEL ROAD, 14 FEET WIDE.

expenditure of funds by the counties. During the year 1920 \$2,294,404.62 were collected from motor vehicle licenses, which is expended in the construction and maintenance of roads.

The total mileage of roads in the State is about 120,000. Of this amount 15,000 miles are designated State roads.

Georgia's Rapid Strides in State Highway Development.

[From State Highway Department, Atlanta, Ga.]

Georgia feels justly proud of her State Highway Department, which has been in existence for only a little over one year, especially in the number of miles of hard-surface pavement that has been completed during the year. There is now under construction, or has been completed during the year 1920, a total of 196 miles of concrete and asphaltic pavement. In spite of many difficulties, such as the building of an entirely new engineering organization, inadequate railroad transportation, scarcity of road-building material and inexperienced labor, there has been completed of this 196 miles 114.5 miles. In the record of bridges there are 33 separate permanent bridge projects, totaling \$2,927,000, seven of which have been completed at a cost of a little more than \$500,000; the remaining 26 bridges average about 50 per cent complete.

In the number of miles of topsoil or sand-clay roads the showing in mileage is much greater, there being at this time 966 miles of

this class of road being constructed at a cost of \$9,145,000. In this figure is included many minor bridge projects which do not reach a span of over 20 feet. The total amount of work thus being under construction or having been completed during the year is 1162 miles of highway and 12 miles of permanent bridges, involving a total expenditure of \$17,500,000.

Of this amount, the Federal Government has allotted to Georgia \$7,500,000, the remainder to come from the counties of Georgia and the State automobile license fund. In this connection the State of Georgia has received from the Federal Government over \$2,500,000 on completed work costing approximately \$6,000,000. Practically all of the work that this money represents has been done during the year 1920.



FEDERAL-AID PROJECT NO. 7, MACON COUNTY, GEORGIA. FLINT RIVER BRIDGE BETWEEN OGLETHORPE AND MONTEZUMA. COST \$170,000.

One year ago Georgia stood at the bottom of the list of Federal aid, in September she was sixteenth, while as of December 1 she had risen to tenth place. This comparison will show the strides of progress that the Highway Department of Georgia has made during the year 1920 better than any set of figures possibly could.

It is the plan and policy of Georgia during the next 12 months to pay more attention to putting their 5000 miles of State highway system into a passable condition, so that at any time of the year travel may not be hindered and each point on the system will be accessible regardless of the weather, rather than to new construction of high-type pavement. In this connection it is estimated that in Georgia the road terrors constitute an astonishing small percentage of the road mileage, and yet they are the cause of the majority of traffic troubles. It is not the intention to waste this



FEDERAL-AID PROJECT NO. 81, DAUGHERTY COUNTY, FLINT RIVER BRIDGE AT ALBANY, GEORGIA. COST \$300,000.



FEDERAL-AID PROJECT NO. 101, SUMTER COUNTY, GEORGIA. PENETRATION MACADAM "FINLEY METHOD" ROAD, ROAD FROM AMERICUS TO AVIATION CAMP. COST \$80,000.



FEDERAL-AID PROJECT NO. 74, SUMTER COUNTY. BRIDGE NO. 1, LIGHTWOOD KNOT BRANCH. COST \$40,000.

money simply on repair work, but to let the money that is spent go for the proper grading on correct locations so that it is a part of the completed system.

In summing up the results of the first year's work, all money that have been spent have been used for the early operation of the system of State roads in order to bring those of us who are isolated and deprived of satisfactory educational, social and religious privileges into nearer contact with one another and to serve all the State rather than any particular section; and as Georgia is primarily an agricultural State, and the prosperity of all the citizens depends upon the prosperity of the farmers, it behooves the Highway Department to afford means of transportation whereby the farmer can bring to market a variety of money-producing crops both quickly and economically.

162 Miles of Roads for Maryland in 1920.

By JOHN N. MACKALL, Chairman and Chief Engineer State Roads Commission, Baltimore, Md.

In 1920 the State Roads Commission of Maryland put under construction, or had left over from 1919, 162 miles of roads, which contracts were completed as follows:

Character of construction.	Under contract.	Completed.
Concrete.....	100.43	86.45
Sheet asphalt on concrete base.....	2.60	2.60
Sheet asphalt on old macadam or concrete base.....	22.26	19.48
Waterbound macadam.....	7.04	6.50
Gravel.....	39.00	19.38

From the above it will be seen that on November 15, 1920, when the construction season ended for the winter, the State, with the exception of about 28 miles, had completed its construction program for the year, and this despite the acute shortage of transportation, brought about by lack of railway equipment for transportation purposes. Of the 28 miles of uncompleted work, 13 miles were gravel contracts in Southern Maryland, which were let very late in the construction season. From this it will be seen that Maryland is in a particularly good position to start its construction program for 1921, as all of the contractors will be available to take on new work, and will not be handicapped by old labor and material contracts, which necessarily would tend to keep up high prices.

Contingent on the sale of \$2,000,000 worth of State bonds in February, and on securing \$869,000 from the Government for Federal-aid projects, Maryland will have available in 1921 for road, bridge and maintenance, including Federal, State and county work, the following funds: Construction, \$6,000,000; maintenance \$1,600,000.

183 Miles of Federal-Aid Roads in Kentucky Now 60 Per Cent Complete.

By JOE S. BOGGS, State Highway Engineer, Department of State Roads and Highways, Frankfort, Ky.

This department now has under construction 183½ miles of Federal-aid road, which mileage is approximately 60 per cent complete. It is the intention of our State Highway Commission to award contracts the coming spring for approximately \$4,000,000 of additional Federal-aid work, to which the activities of this department this season will be largely confined. There is yet to be completed under the former State-aid law, which was abolished July 1, 1920, approximately 75 miles of construction, which will very probably be completed during the season of 1921.

Most of our projects run in mileage from 5 to 20 miles, and are well distributed over the entire State.

The department has surveys and plans completed for \$10,000,000 worth of highway work, but will not be able to place that amount under contract this year on account of insufficient revenues.

Mississippi's Activities in Federal-Aid Roads.

From State Highway Department, Jackson, Miss.

During the past year 37 Federal-aid projects, involving 370 miles in Mississippi were approved and placed under construction. These involved a total estimated cost of \$4,000,000. Of this total 50 miles, at the estimated cost of \$422,254, were completed during the year. This leaves still under construction 314 miles of road. Of the total mileage 70 miles are to be earth roads, 2.6 miles of concrete and 297 miles of gravel. The gravel roads vary in width from 8 to 16 feet.

In addition to this Federal-aid work, a number of counties in Mississippi have separate bond issues for carrying on their individual work. Greater interest in highway improvement is being shown throughout the State than ever before, which is resulting in the development of plans that will ultimately provide this State with adequate and efficient State and intercounty highway system.

Missouri Has Big Road Program Under Way.

From Report of State Highway Department, Jefferson City, Mo.

By December 1, 1920, Missouri, in addition to the \$60,000,000 road-bond amendment carried at the general election, had voted \$21,396,978 in road bonds by counties and road districts, all of which, except \$6,500,000, had been voted since June, 1919.

The State Highway Board had approved 184 Federal-aid projects in 71 counties, calling for the construction of 1828 miles of the State road at a total estimated cost of \$20,322,421.51.

The Bureau of Public Roads had approved project statements for 1615 miles of road, divided into 163 Federal-aid projects, in 66 counties, and calling for a total estimated construction cost of \$18,064,439.25.

The highway department had surveyed 5428 miles of the 6000-mile system authorized by the new road law.

The Bureau of Public Roads had approved plans for the construction of 593 miles of State road, divided into 70 Federal-aid projects, with a total construction cost of \$10,416,455.57.

The State Highway Department awarded 44 State and Federal-aid contracts for the construction of 402 miles of road, calling for a total expenditure of \$6,879,509.

In addition to the above the State Highway Department advertised and was unable to let contracts on 19 projects, calling for the construction of 153.33 miles of Federal-aid roads, to be constructed at a total estimated cost of \$1,626,464.57.

The State Highway Department had let and advertised 17 road projects of 52.66 miles in length, at a cost of \$403,504.64, to be paid for by the State wholly out of the \$1200-a-mile road fund. The above program, including several projects about ready to be advertised and contracts let, is being pushed by the Federal Government, paid by the State treasurer.

The bridge department drew plans for 185 special bridge designs, to be constructed at a total estimated cost of \$1,341,528.

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249,903.75 worth of trucks and other road equipment, which had been allotted to Missouri by the War Department for use in the construction of State and Federal-aid roads.

As will be seen from the above statement, only a small part, comparatively speaking, of Missouri's big road program has been placed under contract, but the State Highway Department has its plans in splendid shape to push construction vigorously during 1921.

More Than 600 Miles of Hard-Surface Roads Under Construction in North Carolina.

By W. S. FALLIS, State Highway Engineer, Raleigh, N. C.

At the present time the only road work with which the State Highway Commission is connected is that for which Federal-aid funds are available, and for this reason we are unable to give you any data on the work which is being done by the counties.

On January 1, 1921, there were under actual construction in



SECTION OF FEDERAL-AID PROJECT No. 47, BETWEEN GREENSBORO AND GIBSONVILLE, GUILFORD.

The road is 17 feet wide between shoulders, the surfacing of "Warrentite" 2 inches thick, laid on a concrete base 5 inches thick.

North Carolina 133.15 miles of hard-surface roads, the total cost of which is approximately \$3,877,627.05; there were also 487.82 miles of topsoil, gravel and sand-clay roads, costing \$5,364,017.14. In addition to this work, there were two bridges under construction, the combined cost of which is approximately \$250,412.80.

Road work under contract on the above date, upon which actual construction had not been started, totalled 62.19 miles of the gravel, sand-clay topsoil type, representing an expenditure of \$654,546.12.

Hard-surface projects completed have a total mileage of 31.89 miles, costing approximately \$1,101,422.75, while the gravel, sand-clay and topsoil roads completed totalled 128.65 miles and cost \$698,699.22. One bridge had been completed at a cost of \$59,224.90.

Summing up the above, the State Highway Commission has handled 165.04 miles of hard-surface roads, cost approximately



A PORTION OF FEDERAL-AID PROJECT No. 51, BETWEEN RALEIGH AND CARY, WAKE COUNTY.

Construction the same as between Greensboro and Gibsonville.



TOPSOIL ROAD NEAR WINSTON SALEM, A VERY GOOD EXAMPLE OF THIS TYPE OF CONSTRUCTION.

\$4,979,049.89; 678.67 miles of the lower-type roads, costing \$6,717,262.48; three bridges, costing \$309,637.70, making a total expenditure to date of \$12,065,949.98.

It is rather difficult to say at this time just what will be done during this year, as the Legislature, now in session, will undoubtedly make some changes in highway work in this State. We have now approximately 500 miles of topsoil road projects, which will probably be let to contract and put under construction during the coming year. There are also about 50 miles of hard-surface roads which will also be let.

Comprehensive Program for Bridge and Highway Construction in South Carolina.

By CHARLES H. MOOREFIELD, State Highway Engineer, Columbia, South Carolina.

The present State Highway Commission was appointed under a law approved March 10, 1920. The State highway system, as revised by the present commission, contains 2037 miles, of which 411 miles have been improved so as to meet the highway department's requirements for roads to be taken over for maintenance. Of the State roads under maintenance only 26 miles have been hard-surfaced.

Construction on the State system is paid for by the counties



REINFORCED CONCRETE BRIDGE OVER HARD LABOR CREEK, McCORMICK COUNTY, SOUTH CAROLINA.

for the most part, but under the 1920 law there is a State-wide two-mill levy, which, together with the automobile license fund not used for maintenance, is expended under the direction of the State Highway Department. This fund in 1920 amounted to slightly more than \$1,000,000.

The total amount of Federal aid available for South Carolina, under the present appropriation, is approximately \$4,000,000, of which about \$1,700,000 has been covered by project agreements to date.

During 1920 361 miles of road were constructed, of which 25 miles were hard-surfaced. This mileage is not included in the maintenance mileage given above.

The counties constructed about 200 miles on the State system during 1920 independently of the State Highway Department.

The amounts expended under the supervision of the State Highway Department during 1920 were approximately \$1,600,000.



USING DITCHING MACHINE TO OBTAIN SAND-CLAY SURFACING FROM SIDE DITCHES, FLORENCE COUNTY, SOUTH CAROLINA.

000 for construction and \$70,000 for maintenance (State maintenance was not initiated until late in 1920).

Program for 1921.

Remaining to be built under existing contracts 287 miles, of which 11.5 miles are hard-surfaced. These contracts, together with roads already improved, will bring total improved mileage up to approximately 1000 miles.

The total amount of funds obligated under existing contracts is approximately \$3,325,000, of which about \$2,800,000 remains to be paid out of 1921.

Federal-aid road work to be advertised in the early months of 1921 will cost about \$1,200,000. State-aid road work to be advertised during the same period will cost about \$1,000,000. These two funds are expected to provide about 250 miles of road.

Highway Bridges.

Total value of bridges completed during 1920, \$123,590.

Total value of contracts in force January 1, \$409,533.

Total value of work ready to be advertised, about \$680,000.

Plans are under way for three major bridge projects, for which funds were provided by the last Legislature. These include:

(a) A crossing of the Santee River, near Murrays Ferry, to cost about \$850,000.

(b) A crossing of the Pee Dee River, near Mars Bluff landing, to cost about \$350,000.

(c) A crossing of the Wateree River at Garners Ferry, to cost about \$150,000.

It is estimated that these bridges will be approximately one-half completed during 1921.

Maintenance.

It is estimated that the State will have under maintenance during 1921 about 1000 miles of improved road, which, based on 1920 figures will cost about \$300,000.

Remarks.

At present there is no connected improved road leading across the State of South Carolina in any direction, and the prospects are that no such connected road will be completed with funds now available. So far the improvements that have been made radiate out from centers of population, and until connected links can be completed, the road system is not adapted for tourist travel. To get connected roads through the State, however, is one of the principal aims of the State Highway Commission.

The financing of road work in South Carolina depends in large measure on the relative prosperity of the agricultural population, and with the great decline in the price of cotton, which is the principal agricultural product, the present prospect is for a curtailment of expenditures. The highway department recognizes the stressed financial situation, and is not advocating the expansion of activities at this time.

A fruit and truck growers' association, working in conjunction with the Ruston Chamber of Commerce, has been organized in Lincoln parish, Louisiana, with a view to better marketing conditions. It is planned to develop the poultry and egg industry, and later on to utilize trucks for the transportation of cream and milk to the creamery at Ruston.

Tennessee's Progress in Highway Building.

[From Department of Highways, Nashville, Tenn.]

The Tennessee Highway Department is constructing highways both on the State-aid and Federal-aid plans. Aside from these highways, all the counties are constructing highways with funds derived from automobile license fees, county wheel taxes or county bond issues. It is impossible to secure any authoritative data on funds expended by the counties.

The following is a summary of State-aid work under construction and in various stages of completion:

Type.	Miles.	Estimated cost.
Grading only.....	33.86	\$139,194.26
Macadam	16.00	29,500.00
Chert	8.4	80,511.25
Concrete	2.5	130,240.26
Bridges	34,539.23
Total	60.76	\$413,985.00

The following is a summary of Federal-aid work under construction:

Type.	Miles.	Estimated cost.
Grading	29.47	\$73,837.10
Macadam	34.68	1,130,064.87
Chert	30.45	470,312.49
Bituminous macadam.....	19.43	2,852,276.47
Rock asphalt.....	46.57	1,465,639.19
Bituminous concrete.....	7.43	261,639.19
Concrete	26.52	1,006,208.60
Bridges	32,467.21
Total	376.55	\$7,753,517.02

The 1921 Federal-aid program consists of 271.75 miles of highways surfaced with the various types and having an estimated cost of \$8,575,900, and bridges estimated at a cost of \$370,000.

Force account work on a day-labor basis is being done on three macadam projects aggregating 16.77 miles.

One concrete highway project, 10.14 miles in length, is being constructed by county forces, under supervision of engineers of the State Highway Department, at fixed unit prices, making it essentially a contract job with the county as the contractor.

The remainder of the work is being done on a contract basis.

Texas Steadily Developing Its Highway System.

By ROLLIN J. WINDROW, State Highway Engineer, Austin, Tex.

Up to December 1, 1920, there had been completed 115 State and Federal-aid projects in 49 counties of Texas. These completed projects involve a total mileage of 976.59 miles, at a cost of \$5,396,327.55, and State and Federal aid to the extent of \$904,252.49 and \$1,308,542.66, respectively. Of the 976.56 miles, 7.1 miles are concrete pavement, 173.94 miles gravel and crushed stone with bituminous treatment or topping, 516.06 miles gravel or crushed stone, 169.93 miles sand-clay or shell, 109.56 miles of grading and concrete drainage structures, and 5 bridge projects.

There are also carried over into the 1921 construction program 174 projects that are under contract and are in various stages of



NATURAL "LIMESTONE ROCK ASPHALT" SURFACING ON GRAVEL BASE. "MERIDIAN HIGHWAY," IN TRAVIS COUNTY, NORTH FROM AUSTIN.



EIGHTEEN-FOOT CONCRETE PAVEMENT ON "BANKHEAD HIGHWAY," IN DALLAS COUNTY, WEST FROM DALLAS.

completion. These 174 projects total 2039.4 miles, have a total contract cost of \$23,277,290.98, and involve \$8,050,256.80 Federal aid and \$1,437,288.26 State aid. Of the 2039.4 miles 100.3 miles are contract pavement, 410.6 miles gravel or crushed stone with bituminous treatment or topping, 1159 miles crushed stone or gravel, 77.6 miles sand-clay or shell, 291.9 miles of grading and concrete drainage structures, and 6 bridge projects.

In addition to the above completed projects and those under construction, there are 95 projects whose plans, specifications and estimates have been approved or are being prepared, and



GRAVEL AND SHELL SURFACING ON THE "OLD SPANISH TRAIL," IN HARRIS COUNTY, NEAR HOUSTON.

which will be under contract in the near future or before 1922. These 95 projects involve 47.8 miles of concrete pavement, 303.7 miles of crushed stone or gravel with bituminous topping, 581.7 miles of crushed stone or gravel, 70.6 miles of sand-clay or shell, 222 miles of grading with concrete drainage structures, and 12 bridge projects, making in all a total of 1096 miles, the total estimated cost of same being \$15,042,883.74. Federal aid to the extent of \$5,177,206.31 and \$1,827,850.76, respectively, have been granted to this work.

Virginia Highway Commission Preparing for an Aggressive Construction Program—Work Now Under Way Will Cost Approximately \$10,000,000.

By G. P. COLEMAN, State Highway Commissioner, Richmond, Va.

Since the election in November when the people of the State, by a majority of sixty-odd thousand, determined to amend section 184 of the Constitution, permitting the General Assembly of the State to issue bonds for highway purposes, there has been very general discussion of the possible plans to be followed in highway construction.

The State Highway Department has accepted the vote of the people on the constitutional amendment as a positive command to be prepared for an aggressive highway construction pro-

gram. The department is, therefore, going ahead with arrangements for such a program, having in mind, of course, that the General Assembly of Virginia at its session in the early part of 1922 will adopt a broad financial policy which will be comprehensive enough to make possible the construction of the highways of the State within a reasonable length of time. We hope this can be done within five or six years, for we believe this to be the wish of a large majority of the people of the State.

Therefore, after consulting with the Governor and the State Highway Commission, the department has already organized two field survey parties, which are now at work, and has in the process of organization three additional parties, these to be sent out in January and February. These parties will be sent out to various sections of the State to locate and establish the State highways and to prepare the necessary plans and estimates of the cost of constructing these highways. They will also locate all available local materials which will be suitable for highway construction.

The estimates furnished will form the basis for the recommendations of the State Highway Department of the financial plan to be presented to the General Assembly in 1922. It is the hope and the expectation of the department that the surveys which are now being made will be sufficient to take in all sections of the State.

A careful study is being made by the department not only of the cost of the main-line highways, but of the county systems, which form the feeders into the main arteries of travel, and it is the expectation of the department to develop and recommend a financial plan for the construction of these feeder roads.

The highway department has under way at the present time 126 contracts on the State highway system, representing a mileage of 561, and the expenditure of \$7,000,000. In addition to this, the department will open bids during the next 90 days on work to cost approximately \$3,000,000, these awards to be followed as rapidly as possible by others. The funds which are being used for this work represent the Federal and State moneys appropriated for the season of 1920 and 1921.

We also have under way, in co-operation with the counties of the State, 77 construction contracts, representing a mileage of 195, and costing approximately \$2,000,000, also contracts for 16 bridges. Additional contracts will be entered into from time to time as the counties prepare their programs, and the work on the county highway or feeder systems will be carried forward as rapidly as possible, thus bringing about the development of the main lines and the secondary lines at one and the same time. Two-thirds of the automobile tax, amounting to \$1,200,000, is available for maintenance.

The department is trying in this way to be ready to carry forward without delay any construction program which the Legislature of 1922 will finance.

West Virginia to Broaden State Highway Work.

By C. P. FORTNEY, Chairman West Virginia State Road Commission, Charleston, W. Va.

West Virginia road construction is just now in a transitory period. At the last election an amendment to the Constitution was approved, by which the main highways of the State will hereafter be constructed by the State instead of by the counties.

The Legislature is in session at this time, and will pass laws enabling the State to build and maintain these main roads. At the present time nothing definite can be said as to the program that will be undertaken in 1921 by the State. It is not believed possible to put under construction a very great amount of mileage this year.

The counties have about \$6,000,000 available in bond issues. They are rather hesitating about letting this to contract until it is seen just how much work the State will take over. There is now under contract about \$5,000,000 worth of work, including State and Federal aid.

At the recent election the people of West Virginia authorized an amendment to the Constitution allowing the Legislature to establish a State highway system and also, if it is deemed necessary, to issue bonds not to exceed \$50,000,000. The Legislature as yet has taken no action, but it is presumed that proper legislation to cover this will be worked out by April 1.

Perpetual Timber Supply Through Reforestation As Basis for Permanency and Paper Making

EXPANSION OF PAPER-MAKING PLANTS AT BOGALUSA CONTEMPLATES ADDITIONAL \$8,000,000 EXPENDITURE AND VAST REFORESTATION WORK.

By COURTENAY DE KALB,*

No. 3.

Unless immediate steps are taken to reforest the cut-over lands of the South, the lumbering industry will come to a stop in the South Atlantic and Gulf States within approximately 25 years. Some estimates place the limiting period at 20 years. If practical reforestation methods should be adopted, continuance of extensive lumbering operations can be assured within the time required for the long-leaf pine to attain a diameter of 15 inches at breast height above the ground, which is about 30 years. The short-leaf pine will do the same thing. There are, however, several other species that will grow much faster. For example, the loblolly and the slash pine will reach a diameter of 20 to 25 inches in 30 years. The average growth of these trees when given adequate protection from fire is one-half inch per annum. Wherever yellow-pine and loblolly trees once grew they will grow again if given protection from stock and fires until they have passed the tender age. The most critical period is the first three years.

These facts have been fully established in Louisiana. The lesson learned here is of vital importance for the whole South. It means that, with small expense, many millions of acres of cut-over lands and timber tracts that are fast being denuded can be converted into a permanent source of wealth.

The first important experiment in reforestation of the yellow-pine forests was made by H. E. Hardtner of Urania, near Alexandria, La. As a result, Urania has become a classic spot among those interested in forestry. The work of Mr. Hardtner and his conceptions of what was needed have been the basis of forest-conservation laws in Louisiana that are the most rational and useful of any in the United States. Mr. Hardtner operates a sawmill with a daily capacity of 50,000 feet, board measure, and he has been operating it for nearly two decades. He still has about 12 years' supply of virgin timber, but he began reforestation on a tract of 50,000 acres of cut-over lands about 1903, so that by the time his virgin timber is gone he will have a new growth, estimated to yield 5000 board feet per acre, with which his lumbering operations will continue. In the beginning he went no further in forestry methods than to protect the small growth, and nature has done the rest. In addition to that he has been actually reforesting large areas of old fields during the last 10 years, on which fine young forests are coming forward. The virgin forest areas, as fast as they are cut, are now being reforested. Consequently, Mr. Hardtner's lumbering operation is permanent.

At Bogalusa the Great Southern Lumber Co. is doing the same thing. Its results will have the added advantage of magnitude, and will thus stand forth as an object-lesson of what can be done to keep the largest class of operation from disappearing after the virgin timber has been stripped. The Great Southern Lumber Co. operates a sawmill that has a capacity of 1,000,000 board feet per diem. It has a pulp mill that produces 120 tons of container-liner daily, and is just preparing to erect additional paper mills with a combined capacity of 600 tons per diem. These are the biggest operations of their kind in the South. The saw-

mill may not be able continuously to maintain its huge output undiminished while the young forests are growing, but the paper mills will never be short of raw material. From first to last the Great Southern Lumber Co. will have over 350,000 acres of timber land under absolute control against damage by stock and fires, and systematic reforestation will keep that area constantly covered by growing and maturing forests. The conception of doing this is due to the foresight and initiative of Col. W. H. Sullivan, vice-president and general manager of the company. His demonstration of what can be achieved, in which he has been



A FIRST-YEAR "FACE," SHOWING HOW TREE IS CHIPPED THE FIRST SEASON.

aided by his chief forester, J. K. Johnson, is so convincing that his company, after having seen the fruits of the first unit of their paper mill, is investing \$8,000,000 in the erection of four more units. In addition to this practical profession of faith, the president of the Great Southern Lumber Co., Col. A. C. Goodyear, has expressed his conviction that what is good for Louisiana is good for the nation. He recently wrote:

"So far as the lumber industry, considered by itself, is concerned, I think that our need at present is the establishment of a national forest policy, which will take the question of timber preservation and reforestation out of the region of debate, in which they have remained for so long a time, and put them into practical operation in a way that will result neither in crippling a great industry nor in driving lumber prices to unreasonable heights, but will produce a timber supply for the country in the future."

Forestry is a science, but not a difficult one. An impression prevails in this country among the masses that the study and

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practice of forestry are encrusted with elaborate detail. This is another German legend with which the Teutons seek to frighten others from attempting the very simple things out of which they can make money. Not that Germany would profit by the denudation of our forests, but it is the German habit to surround every profession with a cloak of mystery. They have perforce adopted forestry, and they have elaborated a system of their own, concerning which they have written and talked in the usual bombastic and indefinite German manner.

As a matter of fact, the Forestry Bureau of the Department of the Interior, through its director, W. B. Greeley, has been endeavoring to impress upon the people the fact that practical, profitable reforestation is as simple a thing as raising wheat, and that while a college education may enable a man to discriminate better as to the selection of soils and of species for particular environments, and assist in other details of culture and preservation, the big economic result can be and must be attained by the man of plain common sense, who can apply a few easily understandable principles.

Any man possessed of ordinary good faculties of observation will realize that fires are not beneficial to forests, above all to pine forests, with their highly inflammable resinous products. Any man who has ever seen a grass fire run through an old field where baby pines were just peeping up with a promise of future forests must have noticed that these baby pines were destroyed by the fire, or so hopelessly injured as to remain cripples ever after, incapable of developing into anything more than feeble, stunted trees. Any bird hunter out for a bagful of quail in the autumn on the cut-over lands of the South must have seen the wind shake the tops of the scattered, lonely trees that by accident had escaped the lumberman's saw and skid-line, and have witnessed a flock of winged seed take flight from the pine cones and settle over the land. This was Dame Nature's attempt to provide for the needs of coming generations of men. The farmer has seen how eager his "shoots" are to dig up the young long-leaf yellow pine so as to eat the succulent rootlets, and how they will strip off the inner bark from the roots of these same trees, even after they have attained a growth of five or six years. Therefore, along with fire, the "razor-back" is a vandal impoverishing the South of one of its greatest possible future resources. The lesson is to keep the pig out of the growing forests with fences, or, simpler still, through appropriate legislation to keep the hog at home in his own lot, securely enclosed by a pig-tight fence.

One may ask, "Is that all there is to forestry?" To be sure that is not all. The young men who are studying forestry in Yale and Cornell universities, for example, are learning a vast deal more than that; nevertheless, the plain man, seeing these agents of destruction at work, and realizing the gravity of them, comprehending that until their ravages have been stopped he cannot secure a new growth of timber, can count on Nature reseeding and bringing forth young trees for his future welfare if he will take the necessary steps to protect the baby trees and see to it that in some manner the seed gets upon the land. If

there are any old trees in the vicinity, Nature will sow his fenced fields for him. If there are no such trees, and the land is not as valuable for farming as for raising pines, then he must gather some seed and broadcast it.

The Great Southern Lumber Co. is doing such seeding on a large scale. This is helping Nature so as to produce a prompt result. In time, with proper protection, reseeding would gradually extend over large areas of bare old fields. But why wait? The people around Bogalusa have found that they could earn easy money by gathering long-leaf yellow-pine seed at 50 cents per pound. The loblolly seed are smaller and lighter, so the company pays \$2 per pound for this variety. At these prices tons of seed have been gathered. If it is worth that much for a cor-

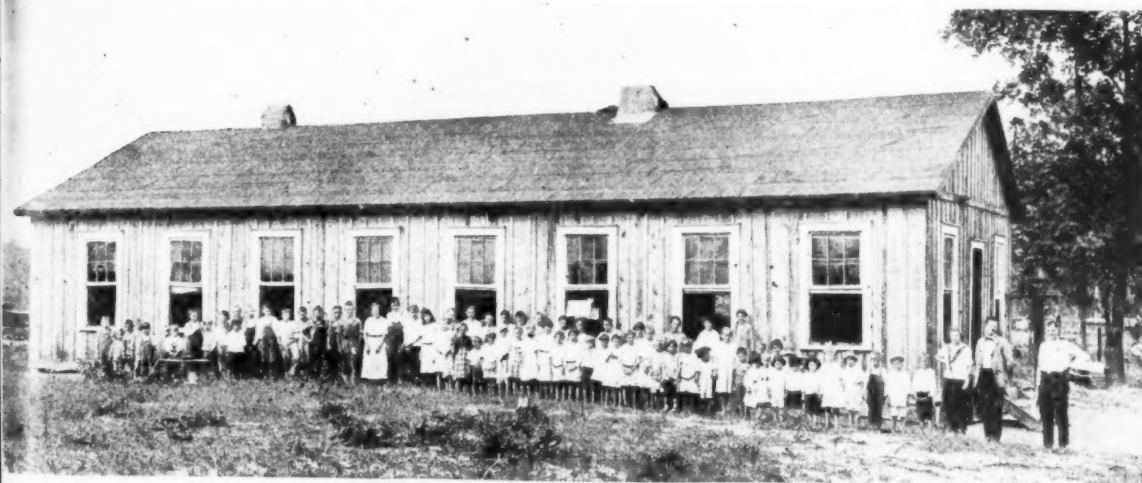


SAWING DOWN TREE IN LOGGING OPERATIONS.

poration, it must be worth more for the individual who has some waste land that is nearly useless except for the trees that might be grown on it.

No more than one pound of yellow-pine seed is required per acre; the loblolly or "old field" pine seed will go even further—perhaps two pounds for three acres. Nature is more prodigal; she will often sow 20 pounds of seed per acre from a few seed trees, but if the ground is not covered with a mat of grass, so as to keep the seed from coming in direct contact with the soil, the lesser quantity is quite enough. There is no advantage in having the trees too thick, and when broadcasting is adopted it may become a positive disadvantage. To secure a good, lusty growth it is undesirable to have a denser stand than 500 per acre. A certain number of seed, from varying causes, will fail to produce trees, otherwise an ounce or two per acre would be sufficient. Thinning trees when they stand irregularly clustered is somewhat costly. Hence the broadcast sowing, at the rate given above, seems to produce the best economic results.

In this connection it may be interesting to record that the



SCHOOL AT COLUMBIA LOGGING CAMP, BOGALUSA, LA.

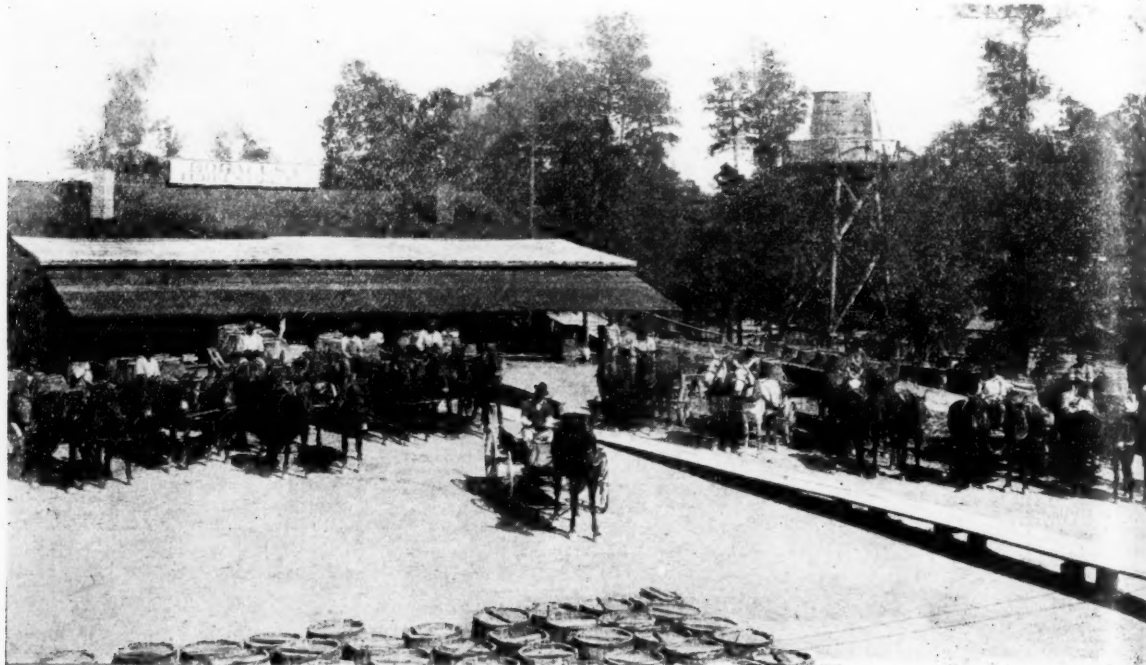
denuded hills, and plateau country around the famous Rio Tinto mine in Spain are also being systematically reforested with a native species, the maritime pine, which is an excellent turpentine producer. One ton of seed is sown yearly by the school children during vacations, who are paid a good wage and work under the direction of the teachers. The children are marshalled in rows like attacking regiments, each armed with a steel-shod pike and carrying a bag of seed slung over the shoulder. Each thrusts his pike into the ground in front of him, throws a seed into the hole, steps forward and repeats the operation. Thus the seed are sown in rows that line up in both directions like a cornfield planted by an orderly minded farmer. The success of the Rio Tinto experiment has been astounding. Great areas are now green with lusty trees, and very few seeds seem to have missed germinating. This is probably due to the protection given by lying in the shallow hole. The regular alignment is meant to facilitate thinning for pulp wood. Alternate rows in each direction can be removed without injury to their neighbors, and the remaining trees will then leave space in which to grow for later use as timber.

At Bogalusa Mr. Johnson, forester for the Great Southern Lumber Co., has already seeded three sections of 640 acres, and will sow this year not less than 5000 acres. They are therefore sowing the seed by the ton, just as at Rio Tinto. They are also fencing another 5000 acres, on which some natural seeding will take place, but next year this area will be seeded by broadcasting so far as necessary. It has been found that timber cut from September up to December, especially that felled in September and October, will reseed the ground immediately. Also, the timber felled up to January will have seeded the ground, but a considerable proportion of these young sprouts will be destroyed by the logging operations. The skid-line is the chief cause of damage, and this is unavoidable. It plows up the ground, destroying the seedlings, but incidentally leaving the soil stirred in a manner that is highly favorable for the prompt germination of the seed. Moreover, the seed sprouts readily amid the trash that strews the ground after the operation of logging.

On one tract of 800 acres on the outskirts of the city of Bogalusa the company has acted on the hint caught from the effect of the skid-lines and has plowed the field in five-furrow strips eight feet apart, center to center, employing a common steel-beam mold-board plow made by the John Deer Plow Co. of St. Louis. The plowed strips are then broadcasted with the pine seed. The plowing also helps in the fire patrol, special fire strips being

plowed around the outside of the area, and also at intervals across the seeded ground. No cleaning is done preparatory to plowing, and the plowing is very superficial, merely stirring the upper layer of the soil. The result has been that the seed have germinated promptly and more generally than on old fields that have not been treated in this manner. However, a large and particularly bare stretch of former pine land, the seeding of which is shown in an accompanying illustration, after lying untouched for several years, and being largely overgrown by native grasses, has shown a very general germination of the seed all over the tract within five days after being broadcasted. The method of plowing before seeding was approved by Colonel Greeley of the United States Forest Service on his visit here several weeks ago, but the success attained on the unplowed old field raises a question as to the need of this extra expense. Its importance in fire protection may justify it, however. It must be noted that when seed is less abundant than this year there might be great losses of seed from birds and rodents when broadcasted. This matter is well understood by the forestry department of the company.

The Great Southern Lumber Co. is working in close accord with the forestry departments of the national and State governments. Under the Louisiana law it is now required, subject to penalties for non-performance, to leave one healthy seed tree on each acre from which the timber is stripped by logging. This is the minimum for natural reforestation. The company goes farther than that. They find that in any virgin forest there are always groups of young trees that are unfit for sawing into lumber. These are generally destroyed by the skid-lines, and often felled to facilitate hauling the logs up to the skidder and loader. These groups of younger trees which had sprung up in the woods, filling the vacant places left by timber fallen through age or blown down by storms, are called "schools." They may consist of 10 to 30 young trees. The average is 28 per acre. The present practice is to clearly mark these by rings of white paint about six or seven feet above the ground, and they are carefully protected against injury from felled trees and from the skid-lines. This ensures abundant reseedling, and it also takes advantage of the reforestation already started by Nature, so that a very important crop of mature trees will be ready within a relatively short time after the virgin timber has been cut, far in advance of the growth from reseedling at that time. From this source will come saw logs by the time the reseeded young growth is ready to cut for pulp wood, which will depend upon the size to which it may



HOOKER TURPENTINE CAMP NEAR BOGALUSA, LA.



TYPE OF \$9000 RESIDENCES NOW BEING ERECTED AT BOGALUSA. DOZENS OF STRUCTURES OF EQUAL SIZE ARE UNDER CONSTRUCTION.

be deemed most economical to let them develop. Thinning may be desirable when the smaller trees are four inches in diameter, which would mean an age of 8 years. The harvest for pulp wood will be progressive, at intervals of several years, taking trees from 4 to 10 inches.

On leaving seed trees and schools of small timber it is found that the bark beetle, a scavenger that feeds on refuse and on the bark of dead and feeble trees, will attack them, taking advantage of their weakness or of any injuries they may have received during the logging operation. A blazed tree is liable to the attack of the bark beetle. Moreover, when the bark beetle has finished eating up the refuse left from logging, he turns his attention to any standing timber in the vicinity, and unless it is so strong and healthy as to resist, it will be destroyed. To eliminate this difficulty gangs of men are now sent in behind the loggers to gather up the refuse, or "slash," and burn it under control. In this manner perfect protection against the bark beetle is secured.

In order to further protect the schools of young trees and the seed trees the company, through its forestry department and its trained forest patrol men, of whom there is one in each logging camp, marks the trees to be preserved ahead of the turpentine crews. These precede the loggers by three years, and they would do much damage unless restrained by leaving the trees marked that are to be left inviolate. All trees less than eight inches diameter are thus protected.

The turpentine camps are equipped with copper stills, direct heated by wood fires in the firebox beneath. The turpentine and volatile oils distill into a copper coil condenser, cooled in a tank of circulating water. The volatile products as they condense flow from the end of the coil and are barrelled for shipment. The resinous material that collects in the cups below the scraped surface on the tree, together with the chips scraped off in scoring the tree to induce the flow of the "turpentine," collectively called "scrape," is brought by wagons to the still and is dumped into it through a cover hole on top. The kettle of a still must have a capacity of 20 barrels to boil 10 barrels of "scrape." Such a still will treat 150 barrels of "scrape" per diem. The rosin settles to the bottom of the kettle, draining away from the chips, while the lighter products vaporize and pass out through the condenser. At intervals the molten rosin is tapped off through a drain hole near the bottom and filtered hot through a film of raw cotton extended over a wire screen. From the filter it flows into barrels

for shipment. The two plants operated by the Great Southern Lumber Co. produce 350 carloads of rosin and turpentine per year. Since these substances are readily collected as a by-product from the sulphate pulping process, the turpentine still will disappear when the regrowth is cut for feeding the paper mills, and this will eliminate one more source of accidental damage to the schools of trees that are reserved.

In order to protect the logging operation from fire it is necessary to burn off the grass and needles in advance of the logging crews. It has been found that in so doing at the season when the trees are seeding the wing of the seed will burn, but the seed itself will be uninjured, and thus a considerable reseedling occurs at once, independently of that from the seed trees left.

The problem of protecting the reseeded areas may be solved either by securely fencing them or by arousing the interest of the local population to enact a stock law that will keep the pigs from straying at will. Fencing is expensive, although this outlay might be minimized by erecting only lead fence to keep the animals away from the seedling tracts.

It is more valuable, however, to have an enlightened public opinion that will assist in carrying out a plan of reforestation. Fortunately there is a rural population scattered throughout the forests of Washington parish around Bogalusa. These people own farms ranging from 40 to 100 acres or more. In any piece of land taken up for farming it rarely happens that more than 40 acres are under actual cultivation. The remainder would be of more value to the farmer if cultivated as a forest, and the company has begun to make this fact apparent by purchasing all the pulpwood of suitable dimensions that is offered. The price paid is \$5 per cord of 154 cubic feet, delivered at railroad. In 12 years a farmer can harvest a crop from a seeded area amounting to 15 to 20 cords, worth \$75 to \$100. Here and there exist farms that have been protected accidentally by fences erected when the old fields had been cultivated. Thereby the pigs were kept out, and the new growth obtained a start. Some of these people have growths of new pine that are ready for market, and these serve as an object-lesson to their neighbors. It is evident that the farmers, spurred by self-interest, will soon enact a stock law that will make fencing unnecessary in Washington parish as part of a reforestation program. The same personal interest of the local inhabitant in tree culture will abate the fire menace. Every farmer who begins to grow trees for profit

is by that very act constituted a natural guardian of the forests, and he becomes a self-appointed and very determined fire patrolman. Half the struggle to achieve reforestation in the South will consist in providing the local landholder with a remunerative market for the product of his tree farms. With the erection of pulp mills in suitable places the trees will come just as the erection of a creamery in the right spot will bring the cows.

Another incentive to the tree culture is being held out by a wise statute enacted in Louisiana which enables anyone owning land suitable for reforestation and assessed at a valuation not in excess of \$10 per acre to enter into a contract with the State for periods ranging from 15 to 40 years, as desired, whereby the landholder obligated himself to reforest under the general advice and direction of the Forestry Division of the State Department of Conservation, and the assessment valuation of such land then remains fixed during the period of the contract. In most States a man who should attempt to reforest is penalized for it, since the tax assessor increases the valuation as the trees advance toward maturity, on the ground that they constitute an available asset.

Many years ago Louisiana enacted a law that should serve as a model for every Southern State. It permitted a reforestation contract that automatically fixed the valuation of such land at \$1 per acre for the period of the contract up to 40 years. This law was in advance of the times and comparatively few took advantage of it. Among those who were wise enough to do so was Henry E. Hardtner of Urania. As the liberality of this statute was not appreciated, it was modified so that now the average fixed valuation under such a reforestation contract is \$5 per acre. This is rather high. A return to the \$1 basis would be better, accompanied by a soil survey when application for exemption is made, so that it should apply to lands more valuable for tree culture than for general farming. The Great Southern Lumber Co. is planning to reforest only the lands that the soil survey now being made by A. E. Anderson of the United States Bureau of Soils shall indicate as being clearly best suited for the culture of pines. From the present results it appears that about 75 per cent of the holdings of the company will be set apart for reforesting and the remainder of the cut-over lands will be offered for sale to farmers. The present price of such lands here is \$15 per acre.

The State of Louisiana has a well-organized forestry department, headed by R. D. Forbes, with offices at the Department of Conservation, New Orleans. Hon. M. L. Alexander, the

State Conservation Commissioner, is also closely related to the work and is ex-officio chairman of the State Forestry Board, appointed for advisory purposes. This board consists of Col. W. H. Sullivan of Bogalusa, Henry E. Hardtner of Urania, S. T. Woodring of Lake Charles and Prof. J. G. Lee of the department of forestry of the Louisiana State University at Baton Rouge. The State Forestry Department has prepared a primer of forestry, which will soon be in print, when it will be used as a textbook for elementary instruction in forestry in the public schools. In this way public opinion favoring reforestation will be cultivated and immense practical results are to be anticipated.

Another project in Louisiana for awakening an interest in forestry consists in boys' forestry clubs, following the precedents of boys' pig clubs and boys' corn clubs. These are being organized in co-operation with Mr. Forbes of the State Forestry Department. This idea was conceived by Col. W. H. Sullivan, who has offered \$500 to be awarded as prizes during 1921. His plan is as follows:

To be a member of a reforestation club each boy should have charge of a tract of land that is being reforested, either naturally or artificially, and on his success in producing a valuable forest of young trees would depend his capture of a prize. In most cases the reforestation would be natural, from seed scattered on the wind by nearby trees, but where no seed trees exist planting would be the method of securing a young stand. The contest would also extend to sapling thickets, which the boy might thin out scientifically to produce the best and quickest growth or from which he might secure the greatest revenue by careful cutting and marketing. For the boy's protection it is required that his father or guardian enter into the exemption contract with the State, and it is suggested that the tract which he cultivates be deeded to him so that he would own a valuable piece of property on coming of age.

The experiments in Louisiana have shown that the long leaf or yellow pine (*Pinus palustris*) is as well adapted to reforestation as the loblolly or old field pine (*Pinus taeda*), and that its growth is equally rapid. The proportion of summer growth, seen in the dark pitchy zones surrounding the sapwood in each annual ring, is greater, and this gives it superior value for flooring and interior finishing. It requires more careful guarding against the ravages of stock, since pigs and cattle do not injure the loblolly, while they find the young yellow pine appetizing, as previously explained. On the other hand, the long-leaf



VIEW SHOWING PORTION OF 40-ACRE TRACT, SEVEN MILES SOUTH OF BOGALUSA. HAS BEEN FENCED ABOUT TEN YEARS. GOOD EXAMPLE OF LONG-LEAF YELLOW PINE FROM THREE TO TEN YEARS OLD.

yellow pine, even when young, is more resistant to fire than the loblolly. The short-leaf pine (*Pinus echinata*) is also a good tree and a rapid grower. The loblolly does best on the drier soils, but the long-leaf yellow pine seems to thrive equally well in wet or dry situations, which is a great advantage. This is especially important in Washington parish, Louisiana, where the sandy soils have been derived from the erosion of the coastal plain soils farther north, and consist of a mixture of fine silica sand and feldspar grains, which later decompose and form gelatinous colloids that accumulate a short distance below the surface, making so perfect a water seal that the upper layers are generally wet, although at some depth below the surface the sands will be found dry. In consequence of this peculiarity the trees here do not generally root deep, but spread out close to the top layer of soil so as to obtain oxygen. The yellow pine has proved perfectly adapted to such conditions.

It is pointed out by foresters that the yellow pine, an indigenous species in this region, seems to be on the decline. Very few of the trees in the virgin forests are more than 150 years old. Trees of that age tend to become unsound. This is interesting and may be significant in connection with future forestry operations.

There is another tree that seems to be particularly aggressive, and in consequence is attracting great attention. This is the slash pine (*Pinus heterophylla*), ordinarily considered a swamp tree, though not as distinctly so as to the spruce or cedar pine (*Pinus glabra*). The latter has a wide sapwood, but the slash pine is remarkable for its very wide summer growth. It therefore makes a stronger, harder lumber, and it is considered by some to be even a better turpentine tree than the yellow pine. It grows very tall and straight, often making a height of 200 feet. It is much sought after for use as piling. It does equally well on high or low land, and it will thrive no matter how wet and undrained the site may be. It needs careful protection from fires, especially while young, being far less resistant than the long-leaf yellow pine. On the other hand, it is not touched by hogs, which removes one great difficulty in reforestation. Austin Cary of the United States Forest Service says it is the coming pine for the South, and Mr. Forbes, Louisiana State Forester, confirms his opinion. It is singular that the slash pine, which grows along the Gulf and South Atlantic coasts, stops short at the Mississippi River.

The remarkable achievements in reforestation in Louisiana and the enormous new investments by the Great Southern Lumber Co., based upon a broad policy of scientific tree culture, have already aroused wide interest, and it seems likely that the progress made here will soon be emulated in other States. The State of Mississippi has just created a Conservation Commission, which held its first regular meeting at Jackson on January 17. Reforestation was one of the chief questions considered, the purpose of the commission being to submit a bill for a conservation act. This commission consists of P. P. Garner, chairman; H. E. Blakeslie, statistician; James T. Ward, secretary; Judge Percy Bell and Prof. E. N. Lowe. Representatives from Louisiana were invited to attend this meeting.

The great work accomplished at Urania and at Bogalusa stands as a splendid lesson for the whole South. At these places the problem of the cut-over lands has ceased to exist. They have proved how to reforest them economically and how to realize a handsome profit from them. Let others follow these examples. In the words of the Bogalusa slogan, "IT CAN BE DONE!"

Will Erect Lumber Manufacturing Plant.

Warfield, Miss., January 22 — [Special.] — The Denkmann Lumber Co., with main offices at Hammond, La., will erect a sawmill and lumber manufacturing plant here at a total cost of about \$350,000, including equipment and the necessary plant buildings. The general contract has been awarded to Dwight P. Robinson & Co., Inc., New York city. The buildings to be erected will cost approximately \$100,000, and will be of mill construction. The plant will have an output of 175,000 feet of lumber daily. Equipment of various kinds, including general sawmill machinery, boilers, turbo-generators and motors, are to be installed at a cost of \$250,000.

Protection Needed Against Foreign-Grown Potatoes—How the Fordney Tariff Bill Could React Favorably on the Need of Europe for Foodstuffs.

Florida Potato Growers' Association.

Hastings, Fla., January 20.

Editor Manufacturers Record:

As a grower of food products here in this great Hastings potato belt, where we produce 14,000 acres of spring Irish potatoes every year without fail, I desire to draw out a few points in favor of the Fordney Emergency Tariff bill in so far as it affects the production of potatoes over the United States.

We notice with much interest that shiploads of potatoes are coming to our ports from Europe, and the freight charge is only 10 cents per bushel for the 3000-mile haul. It costs us to send our potatoes to the Northern markets practically 40 cents per bushel for a 1000-mile shipment. It is true we get extremely high prices for our product—\$8 and \$10 per barrel f. o. b. cars—but our production cost will run \$4 and over per barrel. But take the Western shippers, who produce their potatoes much cheaper and get cheaper prices. We believe in proportion the freight cost greatly favors the foreign potatoes, which is also a cheaper-grown potato.

Now, take this year's crop in the United States, being over 430,000,000 bushels. Many growers are losing money on their crops because of the abundance and extremely high freight rates, which almost prohibit marketing. How can these growers send their potatoes to the Eastern markets and compete with cheap foreign stock, and in the face of an overplus of this food supply in the United States.

Another feature which is not logical is the fact that we are as a nation raising millions of money to help the starving thousands in Europe, while in the face of it Europe is shipping us food, potatoes, of which we already have an overplus. Likely as not, some of our money will buy these same potatoes and ship them back to Europe. Good business forbids us to bear with such a condition. So to us this Fordney Emergency Tariff bill looks reasonable and should react in a humane way on Europe.

R. M. BURT,

Secretary Florida Potato Growers' Association.

Begin Work On \$600,000 Bank Building Annex.

Richmond, Va., January 24 — [Special.] — The Federal Reserve Bank of Richmond, before completing its new bank building at the corner of 9th and Franklin streets at a cost of more than a million dollars, has commenced the erection of an annex which will cost between \$500,000 and \$600,000, the building permit for which has just been obtained.

The annex is to be at the corner of 8th and Franklin streets, directly to the rear of the main building. It will be of simple construction, on the type and style of the main building, and is expected to be completed within the next six months. Work on the foundation is already under way. Carneal & Johnson of Richmond are the architects, and the John T. Wilson Company of Richmond the contractor.

The expansion of the business of the Federal Reserve Bank has necessitated this increase in the facilities. The annex will house various department of the bank, but will be principally for clerical work and detail matters.

Not Prepared—Money Surely Scarce Down in South Carolina.

[Special Correspondence Manufacturers Record.]

Capt. J. W. St. John, manager of the American Agricultural Chemical Co., received the following unique answer to a request for money:

"Dear Sir—I received your letter about what I owes you. Now be patient. I aint forgot you and as soon as folks pay me I'll pay you. If this was judgment day and you no more prepared to meet your God than I am to meet your account then you sho going to hell. Good by."

SOUTHERN TARIFF CONGRESS ATTRACTS WIDE INTEREST.

Preliminary Meetings Attended by Delegates From All Over South—Assurances That Tariff Will Be Considered Along Broad National Lines.

[Telegram to Manufacturers Record.]

Atlanta, Ga., January 24.

Preliminary committee meetings in preparation for the Southern Tariff Congress, which will begin January 27, were held here today. Delegates from all over the South and the North are arriving in large numbers. Over 600 have signified their intention of being present. Among these will be Vice-President-Elect Coolidge, and Governors John M. Parker, Louisiana; Lee Russell, Mississippi; W. P. Hobby, Texas; Alfred A. Taylor, Tennessee, with possibly others.

James W. Good, chairman of the House Appropriations Committee, will deliver an address on taxation, and James T. McCleary of Minnesota will discuss the tariff on broad lines. The keynote of the discussions at the preliminary meetings is that America must be self-sustaining as a matter of national security, and industries threatened by foreign competition must be preserved. The question is not one of protection to special interests, but of preservation of the national welfare. No political issues are involved. The economic life of the country is at stake in the face of the most intense commercial war ever directed against United States. Imports of vast quantities of peanuts and soy beans from the Orient have nearly destroyed our domestic peanut industry, and are working havoc with our market for cottonseed oil.

George W. Armstrong and Marion Sansom of Fort Worth, who have arrived at Atlanta, point out that Argentine chilled meats are being laid down in our ports for less than our cattle raisers can produce them.

Brook Morgan, president of the National Cracker Association and head of the Frank E. Block Company of Atlanta, stated today in committee that European crackers and biscuits are invading our markets in great quantities. The English costs in producing crackers are now reduced to \$1.25 per hundredweight, while our labor costs are \$8. To prevent collapse the American cracker industry must have a tariff or greater labor efficiency, or both.

Foreign wools are being produced for half that they cost in this country, threatening the very existence of American flocks.

John H. Kirby of Houston, Tex., representing the lumber producers, says that this industry is greatly interested in a tariff on articles that will cease to be produced here without protection. On the ground of general prosperity, the destruction of agricultural and manufacturing enterprises will be reflected in a severe depression in our lumber market.

The American Honey Producers' League is represented at the Southern Tariff Congress by J. J. Wilder of Waycross, Ga., who is the largest individual bee culturist in America. C. Patout Burgieres of Foster, La., is the first of the large sugar producers to arrive on the ground. Representatives of the rice growers will be here tomorrow. C. E. Stewart, Jr., of Tampa, manager of the Citrus Fruit Exchange of Florida, heads a strong delegation from that State.

The meeting of the Southern Tariff Congress promises to be one of the largest industrial conventions ever assembled in the South, and it is significant of a change in the spirit and manner of dealing with this problem that it will no longer be a local issue, but a broad national movement for the normal growth of balanced industries, including the farmers and the producers of all kinds of raw materials, as well as the manufacturers.

The Cotton Movement.

In his report of January 21, 1921, Col. Henry G. Hester, secretary of the New Orleans Cotton Exchange, shows that the amount of cotton brought into sight during 174 days of the season was 6,706,381 bales, a decrease from the same period last year of 1,891,251 bales. The exports were 2,744,333 bales, a decrease of 772,557 bales. The takings by Northern spinners were 755,753 bales, a decrease of 1,010,079 bales; by Southern spinners, 1,705,026 bales, a decrease of 1,027,356 bales.

PUBLIC WORKS SHOULD BE UNDERTAKEN.

President Willard of the Baltimore & Ohio Railroad Says That Now Is the Time to Start Highway and Other Improvements.

President Daniel Willard of the Baltimore & Ohio Railroad Co. expressed himself strongly in favor of undertaking road construction and all other public works possible at this time. He considers that conditions are now propitious.

"I am just as much in favor of this kind of work now as I was opposed to its being undertaken last summer," declared Mr. Willard to a representative of the MANUFACTURERS RECORD. "In my opinion, it was essential at that time for the railroads to move all the coal possible to points where it was urgently required, and it was furthermore necessary for the farmers to be able to hold all of the labor possible to cultivate and harvest our abundant crops. Had we gone ahead with a program of highway building then, the attraction of liberal wages paid by the road contractors would have undoubtedly drawn much-needed laborers from the grain fields, and our agricultural interests would have seriously suffered in consequence.

"However, that is all past; the coal has been delivered and a shortage of fuel in manufacturing districts no longer exists; the crops have been garnered and the danger of a food shortage is removed. Now there is a clear way open to engage in the many public works which were necessarily halted for a time. The market for public bonds, or 'municipals,' as they are known in the security market, is good, and there would be no difficulty in obtaining funds necessary for good roads, drainage undertakings, new schoolhouses and more of them, street paving, sewer work and sewage plants, sidewalk and other urban improvements, not to mention the erection of public buildings of various kinds, work on which was unavoidably held back by war conditions and the disturbed state of affairs following the cessation of hostilities.

"There is besides an ample supply of labor now to draw from for these works. Because of the recent slackening and falling off in business, many men have been thrown out of work and are now seeking employment, so that there is a full reservoir of energy and muscle to meet requirements. I am glad to know that the MANUFACTURERS RECORD is urging this kind of work throughout the South. The time could not be more opportune for such constructive activity. The workers who are idle at present will heartily welcome the opportunity to obtain remunerative employment, and not a few of them, heretofore engaged in indoor occupations, will eagerly grasp the chance to again engage in work in the open. To undertake these works now would not only be conferring benefits upon the communities which will enjoy the advantages to result from them, but it would be a boon to thousands of men who, after having had uninterrupted employment at liberal pay for a long time, now find themselves confronted suddenly by idleness and uncertainty.

"In making these varied public improvements there need be no difficulty about obtaining materials, as the railroads now have ample equipment available to carry them, although the supply of cars and locomotives is being increased to meet traffic conditions later in the year when railroad business swells again, during the summer and fall months. It was impossible for the railroads not to have established temporary embargoes upon certain kinds of traffic, but now that the conditions which made them necessary have passed, the free movement of all kinds of freight will assure contractors and others engaged in these public works that, so far as transportation is concerned, there need be no fear of delays in receiving materials.

"If these public works are undertaken now with energy and discretion there need not be any idle men," said Mr. Willard in conclusion. "There will be plenty of work for those at present unemployed, and besides a general stimulation of business will result in the different sections and communities where the various improvements are to be made."

Would Represent Foodstuff Packers.

RAMON TORRES & Co., P. O. Box 98, San Juan, P. R.—Our specialty is foodstuffs, and if you can connect us with any packers of food products who desire Porto Rico representation, we would appreciate it fully.

Final Text of the International Credits Scheme Proposed by the League of Nations

[The Bankers Trust Co. of New York has issued a bulletin containing the final text of the International Credits Scheme proposed by the Provisional Economic and Financial Committee of the Council of the League. The scheme contemplates the formation of an international organization through which impoverished nations may secure funds for the financing of their essential imports. It is proposed that the administration should be under the direction of the League of Nations. The importance of the plan warrants publication of its details, since the subject may shortly become a paramount world issue, particularly along the lines of whether or not it is necessary to have such an International Credits Scheme under the auspices of the League of Nations, already moribund. A most careful study of the entire plan by American business men is essential to a just appreciation of its merits or demerits. The subject is treated editorially elsewhere in this issue.—Editor Manufacturers Record.]

1. In order that impoverished nations, which under present circumstances are unable to obtain accommodation on reasonable terms in the open market, may be able to command the confidence necessary to attract funds for the financing of their essential imports, an International Commission shall be constituted under the auspices of the League of Nations.

2. The Commission shall consist of bankers and business men of international repute, appointed by the Council of the League of Nations, and shall have discretion to appoint agents and sub-commissions and to devolve upon them the exercise of its functions.

3. The Governments of countries desiring to participate shall notify to the Commission what specific assets they are prepared to assign as security for commercial credits to be granted by the nationals of exporting countries.

4. The Commission, after examination of these assets, shall determine the gold value of the credits which it would approve against the security of these assets.

5. The participating Governments shall then be authorized to issue bonds to the gold value approved by the Commission. The bonds shall be in such form, with such date of maturity and rate of interest as the Commission may decide, and shall, in particular, enumerate the assets pledged against the bonds. The denomination of each bond and the specific currency in which it is to be issued shall be determined by the participating Government in agreement with the Commission, in accordance with the conditions applicable to the particular transactions in respect of which they are issued.

6. The service of these bonds, which will be obligations of the issuing Government, shall be specifically secured out of the revenue of the assigned assets.

7. The assigned assets shall be administered by the participating Government or by the International Commission, as a majority of the Council of the League of Nations may determine on the proposal of the International Commission. Nevertheless, in cases where the administration of the assigned assets is in the hands of the participating Government, the International Commission at any time may, and in the event of default shall, require the participating Government to transfer the administration of the assets to itself.

The participating Government shall have the right to appeal to the Council of the League of Nations against this requirement, and the decision of the Council of the League of Nations on these questions shall be binding.

8. The revenues from the assigned assets shall be applied as follows to the service of the bonds:

(I) Out of these revenues the Commission shall purchase and hold, or the participating Government shall satisfy the Commission that it has purchased and holds, foreign currencies sufficient to provide—

(a) Cover for the coupons falling due in the next year of all bonds at any time outstanding in each of such currencies.

(b) A sinking fund calculated to redeem at maturity 10 per cent of the bonds outstanding in each of the different countries.

(c) A reserve in such foreign currency or currencies as the International Commission may determine for the redemption of any bonds sold in accordance with paragraph 16.

(II) Any surplus remaining after the provision of these services shall be at the free disposal of the participating Government.

9. The participating Government will be free either to pledge its own bonds as collateral for credits for approved imports on its own account or to lend the bonds to its nationals as collateral for credits for approved imports on private account, and for the latter purpose will be free to fix such terms, including the security, if any, to be given, as it may think fit.

These terms shall be communicated to the Commission. The bonds shall not be used for any other purposes than those specified in this clause.

10. Each bond shall, before issue, be countersigned by the Commission in proof of registration.

11. The fundamental purpose of the scheme being to facilitate and expedite the import of such raw materials and primary necessities as well as enable the borrowing countries to re-establish production especially for export, bonds secured on the assigned assets shall not be utilized as collateral for credits for the import of other commodities, provided that where the Commission is satisfied that the import of such other commodities will assist in securing the above purpose, it shall have the discretion to permit special exceptions to the above rule, subject to such conditions as it may think fit.

12. For each borrowing country the Commission will draw up, in consultation with the participating Government, a schedule of approved imports, which will be regarded as falling within the definition of raw materials and primary necessities.

13. Particulars of each transaction must be registered with the Commission, which, before countersigning a registered bond, will satisfy itself that the credit is for an approved import and that the period for which it is proposed to be granted is a reasonable one.

14. The same conditions as govern the pledge of its bonds as the collateral for credits for imports on private account shall apply in cases where the participating Government pledges its own bonds as collateral for imports on Government account.

15. After having received bonds duly countersigned the importer will pledge them with the exporter.

16. Pledged bonds shall be dealt with as follows:

(a) In the absence of any failure by the importer to fulfil his contract with the exporter, the coupons on their due date, and the bonds as they are released, shall be returned to the importer, who shall return them to his Government forthwith.

(b) In the event of the importer not fulfilling the terms of his contract, the exporter (or his assigns) may either hold the bonds until maturity, or if he prefers he may, at any time, sell them in accordance with the laws and customs of his country, providing that before the bonds are sold a reasonable opportunity shall be given to the issuing Government to repurchase them by paying to the exporter the amount of his claim. The proceeds of such sale shall be applied by the exporter towards covering his claims against the importer. Any surplus not required for this purpose shall be accounted for by the exporter to the participating Government.

(c) Any coupons or bonds returned to the participating Government or purchased by such Government shall be forthwith cancelled in accordance with the regulations to be prescribed by the International Commission; cancelled bonds may subsequently, with the approval of the Commission, be replaced by other bonds, either in the same or in a different currency, in accordance with the conditions governing the original issue of bonds.

Effort to Awake America to Her Maritime Needs.

New York, January 25—[Special.]—The unified spirit of the American people for the permanent establishment and continued life of our merchant marine is demonstrated by the activities of the National Marine Exposition, with over 170 exhibits of firms engaged directly and indirectly in shipbuilding and allied business, being held at the Grand Central Palace, New York city, January 24 to 29, inclusive.

The fleet has been built, the ships and crews for manning them have been tried out in active service and the organizations for operating the ships are at hand, so that the important matter of "carrying on" in competition with other maritime nations is the vital problem that must be solved by "a long pull, a strong pull, and a pull all together" of the American seaports of the East, the South and the West, the Government agencies, the shipowners, the manufacturers, the agricultural interests, and, in fact, every element of the nation.

The upholding of our maritime status is admittedly of vital importance to every individual of the nation, either directly or indirectly.

The ways and means of giving effect to the united spirit and patriotic support of all seems to be the one remaining element, undetermined but that must be effected, to give the full fruition for the energies and expenditures already applied.

It is to give opportunity of demonstration and to afford direction to the united efforts of the nation that the National Marine League, under the guidance of President P. H. W. Ross, works indefatigably and continuously for the welfare of the American merchant marine.

One of the results of its activities is the holding of this National Marine Exposition, which has brought together the shipbuilders, shipowners, operators, Government agencies, marine insurance and classification representatives. This exposition affords opportunity to present by models and other exhibits, photographs, moving-picture illustrations and through instructive addresses the latest developments in naval architecture, the products of the various building plants of the country, and also the commercial and political aspects of the maritime industry.

It is proving to be a living, vibrant illustration of "America awakened" to the emergency call of her maritime necessities and obligations.

New Building Projects in Okmulgee Amount to Nearly \$1,500,000.

Okmulgee, Okla., January 24—[Special.]—Announcement by officials of Okmulgee Lodge No. 199, A. F. & M., that ground would be broken on February 1 for the new seven-story Masonic building to be erected at the corner of North Grand Ave. and Fifth St. brings the total of important building operations that will be under way in Okmulgee within 30 days up to \$1,360,000. Work is now progressing on four big building projects, the total estimated cost of which is \$695,000, and the Masonic building and three other buildings which are announced to begin within 30 days makes the total as stated above.

The new Masonic building will be 69 by 102 feet, seven stories high with a basement, of reinforced concrete construction with stone, terra cotta and brick trim. The total estimated cost is \$400,000. Financing has been completed, according to the trustees, who are Dr. T. H. Shelton, M. L. Carr and Z. J. Bahlman. The architects are J. M. Whitehead and R. E. Jenness of Okmulgee. Bids for the excavation and foundation work have been called for.

The building will have entrances on both Grand Ave. and Fifth St. and will be equipped with three electric elevators. The basement will be designed for use as a cafe, there will be four store rooms on the ground floor, offices on the next four floors, club rooms and banquet hall on the sixth floor and two lodge rooms, 42 by 52 and 17 feet high, on the seventh floor. The fourth floor will be specially designed and equipped for the use of physicians and the building will have glass partitions, tile floors and marble wainscoting throughout.

The other building projects under way in Okmulgee now are the Bank of Commerce building, a seven-story office building,

to cost \$500,000, the foundations for which are practically complete; the McCracken & Mitchell Hardware Co.'s building, a two-story brick building, costing \$65,000, the contract for which has been let; a two-story brick store building, costing \$65,000, being built by Frank Charon, the foundations for which are being laid, and the new passenger terminal of the St. Louis and San Francisco Railroad Co., costing \$75,000, which is now under construction.

C. W. Colvin has broken ground for a new store building, which will cost \$40,000 and up, and bids for the new public library and Knights of Columbus building, which will cost \$100,000 and \$125,000, respectively, will be opened during February. Financing of all of these buildings has been completed and sites have been cleared.

With the new residences that are being built in all parts of the city Okmulgee's building program in February totals more than \$1,500,000.

\$1,000,000 Fertilizer Plant for Baltimore District.

Plans have been completed and the general contract awarded for the erection at Baltimore of one of the most modern fertilizer and acid phosphate plants in the country for the Rasin-Monumental Company, which has an established plant in the Fairfield section on the Patapsco River. This new plant and equipment will entail an expenditure of upward of \$1,000,000 and will permit of an output of about 125,000 tons of fertilizer and fertilizer making materials yearly by use of the most advanced methods and economical and labor-saving devices. The company is a subsidiary of the Virginia-Carolina Chemical Co., with main offices at Richmond, Va.

The new plant will be erected on a tract owned for a number of years by the company adjoining the present plant at Fairfield and north and east of it. It will be of concrete and steel construction and as nearly fireproof as it is possible to make it, the present plant being of frame construction. In addition to the fertilizer plant the company also has in operation a modern sulphuric acid plant which has been entirely rebuilt and re-equipped during the past two years and no changes will be necessary in it. It is of brick, concrete and steel construction. The erection of the new fertilizer plant will necessitate making extensive waterfront improvements for handling incoming and outgoing shipments of materials, and the latest handling devices will be used. Electric traveling cranes and conveyors of various kinds will handle the materials in the plant itself.

The plans for the new unit were prepared after many months of careful study and investigation to insure the best possible and most up-to-date plant by the engineering department of the manufacturing branch of the Virginia-Carolina Chemical Co., preliminary plans having been completed last fall and since then work has been progressing upon the final details of layout and equipment.

Contract for erection of the plant has been awarded Hugger Bros. of Montgomery, Ala., who, however, advise the MANUFACTURERS RECORD by wire that the work has been postponed temporarily. The Baltimore plant is of the opinion that work will be commenced in the near future.

Over \$1,000,000 for Additional Telephone Equipment.

The Chesapeake & Potomac Telephone Co. of Baltimore has begun improvements to its machine switching central office telephone equipment at the Liberty Exchange, in the Forest Park section, to be followed by similar improvements to both the Gilmore and Walbrook exchanges, which, when completed, will represent an expenditure of upwards of \$1,250,000. The immediate plans call for the installation of automatic telephone equipment at the Liberty Exchange, and this work is already well under way. The installation of this new equipment will take place over a considerable period, and as soon as the work at one exchange is completed the others will be so improved.

Most of the equipment will be ordered from the Western Electric Co.

Alabama Manufacturers' Association to Further Production and Expand Trade

SIGNIFICANCE OF ORGANIZATION'S FIRST ANNUAL MEETING AT BIRMINGHAM—READJUSTMENT OF FEDERAL TAXES RECOMMENDED—RESOLUTIONS ADOPTED URGE CHANGE IN ESCH-CUMMINS LAW AND URGE SOUTHERN MAN FOR COMMERCE COMMISSION—ENDORSE OPEN SHOP.

[Special Correspondence Manufacturers Record.]

Birmingham, Ala., January 19.

On the 18th of January the first annual meeting of the Alabama Manufacturers' Association was held at the Southern Club in Birmingham. This organization is another of the symptoms of the rapid growth of manufacturing in the State. A consciousness of solidarity of purpose to engage in production as a factor in national commerce, and with a view to export business with Latin America, was strongly evidenced in the discussions at this gathering.

There were present at the business meetings 61 representative manufacturers, and 150 attended the banquet in the evening. Within one year there have been enrolled 297 active members and 243 associate members. The active membership embraces over 50 different manufacturing industries, with a nominal capital of \$287,000,000 and a payroll last year of \$72,457,000 distributed among 103,000 employees. The diversification of manufacturing among the membership is interesting. There are 6 steel works on the list, 9 pig-iron producers, 16 coal-mining companies, 10 foundry and machine works, 19 pipe manufacturers, 21 cotton mills, 6 cottonseed oil mills, 1 automobile factory, 7 fertilizer manufacturers, 3 hosiery mills, 1 general knitting works, 1 locomotive works, 1 wire-rope factory, 1 wagon factory, 4 shipbuilding plants, and many more.

The cotton mills alone represent \$11,000,000 of nominal capital and a payroll of \$8,153,000 in 1920, with 7589 workers enrolled.

This rapid organization is due to the leadership of L. Sevier, the president, located in Birmingham, the headquarters of the association. Mr. Sevier was re-elected president for the ensuing year. The other officers are: T. H. Benners, Birmingham, and J. L. Bedsole, Mobile, vice-presidents, and J. K. Jackson, Birmingham, secretary-treasurer. The board of directors, elected for three years, are the following: J. M. Gibson, secretary of the Holland Blow Stove Co. of Decatur; D. L. Rosenau, president the Rosenau Hosiery Mills, Tuscaloosa; W. C. Michaels, president Alabama Cooperage Co. of Calera; R. D. Dunlap, president Alabama Dry Dock & Shipbuilding Co. of Mobile; John B. Rider, general manager E. E. Jackson Lumber Co. of Ridgeway; J. C. McGowan, secretary-treasurer the W. T. Smith Lumber Co. of Chapman; and C. A. Hamilton, vice-president Alabama Pipe & Foundry Co. of Anniston.

At the morning session an address was given by Louis H. Bell of the Southern Tariff Congress, pointing out the industries in the South which are unable to meet the competition of cheap labor in the Orient and elsewhere, and which prevent the utilization of the opportunities presented in the South for supplying our normal needs. Among the industries that require protection are peanuts and other oil-producing seeds, such as soy beans, the base of soap-making in this country today; rice, which has received a staggering blow from imports coming from the Far East; cane sugar, which normally cannot compete with tropical America, and which must be protected in order to ensure us an independent domestic output of this essential commodity, and many minerals, including graphite, mica and manganese. These questions will come before the Tariff Congress at Atlanta on January 27.

At the afternoon session an elucidation of certain basic principles of trade with Latin America was given by Courtenay De Kalb, speaking on this occasion as a representative of the MANUFACTURERS RECORD.

A brilliant speech was delivered in the evening by Dr. Charles Aubrey Eaton of the editorial staff of Leslie's Weekly and well known as an advisor to corporations on labor management. He expounded the principles of personal contact between employer and worker as a fundamental need and as a condition precedent

to his becoming the personal leader for general welfare as well as industrial effort of the men under control.

Mr. Sevier, with the enthusiastic endorsement of the members present, suggested that President-elect Harding would do well to consider Dr. Eaton as an available man of vision for the post of Secretary of Labor.

Representing a membership of 540 and a capitalization stated at \$300,000,000, and employing 100,000 men or more, the association adopted resolutions bearing on the relation between employer and employee and the open shop, voicing the sentiment of the organization. They in part follow:

The Alabama Manufacturers' Association pledges itself to oppose any and all legislation not in accord with the foregoing declaration. The following resolution regarding the open shop was adopted: *Resolved*, That the Alabama Manufacturers' Association define its purposes as to the American plan, or open shop employment: *Resolved*, Further, we are opposed to the closed shop. We are opposed to coercion or intimidation. We are opposed to violence, destruction agitation, class wars, revolutionary socialism, lawlessness, disorder. We are opposed to boycotts, blacklists, lockouts and illegal acts of interference with the personal liberty of employer and employee. We are opposed to limitations of output or production. We are opposed to excessive leisure because it prevents a reasonable measure of productivity and is liable to lead to social evils. We are opposed to over-specialization. We are opposed to despotic or autocratic treatment of the matter of human relations.

The attitude of Congressman Mondell of Wyoming toward questions of taxation was fully endorsed in a resolution that was adopted, which concluded: "The Alabama Manufacturers' Association urges consideration on the part of Senators and Congressmen to the question of Federal tax readjustment such as will permit of relief from the burdens that the industrial life of this State are forced to meet.

Scoring the losses resulting to industry in Alabama through inadequacy of transportation facilities, it was resolved:

* * * That the South may have that representation to which it justly is entitled, the President of the United States is urged through our Congressmen and Senators to give that recognition to the South in his appointment to serve on the Interstate Commerce Commission as one of its members, a representative of the South and whose home may be in the South, and who is familiar with the South's needs, as to transportation facilities necessary to protect the South's industrial and agricultural life.

The passage of a bill to develop the water-power at Muscle Shoals and the creation of works for making fixed nitrogen in quantity sufficient to ensure a sufficient amount of domestic nitrogen for the needs of the country was earnestly recommended in another resolution, and the splendid efforts of Senator Underwood in putting the nitrate bill through the Senate were heartily endorsed.

Following on the heels of the meeting came the announcement that the Shipping Board had authorized an all-water rate between New York, as well as other Eastern points, and Birmingham. This opens up great possibilities for cheapening costs of manufacturing and living in Alabama, and of reaching Eastern and Northern markets with manufactured products of this zone. The all-water rate will be 80 per cent of the all rail. This supplements the advantage for Latin-American trade afforded by the existing barge rate to Mobile, which is a 20 per cent reduction from rail rates to that port.

During the month of December oil wells costing in the neighborhood of \$27,000,000 were completed in Texas and Oklahoma, according to a recent survey of these fields, the Osage field and Stephens county, Texas, comparing most closely in the number of wells completed.

Iron Ore Production of Southern States in 1920 Increased 16 Per Cent Over 1919

THROUGHOUT THE COUNTRY THE PRODUCTION INCREASE WAS 12 PER CENT—SHIPMENT OF ORE FROM MILLS OF THE COUNTRY INCREASED 24 PER CENT IN QUANTITY IN 1920 AND NEARLY 43 PER CENT IN VALUE AS COMPARED WITH 1919.

The iron ore mined in the United States in 1920, exclusive of that which contained more than 5.5 per cent of manganese, is estimated at 67,773,000 gross tons, an increase of 12 per cent as compared with the output in 1919, according to a report just issued by the United States Geological Survey.

The Southeastern States, which constitute the second largest iron-ore producing area, including the Birmingham and Chattanooga districts, mined 6,663,000 gross tons of iron ore in 1920, an increase of 16 per cent as compared with 1919. The shipments of ore from these States to blast furnaces in 1920 amounted to 6,575,000 gross tons, valued at \$20,994,000, an increase in quantity of 18 per cent and in value of nearly 32 per cent as compared with the quantity and value of shipments in the previous year. The ore contains about 78 per cent of hematite, 21 per cent of brown ore and 1 per cent of magnetite. The average selling value of the ore in these States in 1920 was \$3.19 a ton; in 1919 it was \$2.87. The production of ore in these States in 1920 apparently slightly exceeded the shipments, so that the moderate stocks at mines and furnace yards were increased.

ESTIMATE OF IRON ORE MINED AND SHIPPED IN THE SOUTHEASTERN STATES IN 1919 AND 1920.

	Ore mined (gross tons).		Ore shipped—			
	1919.	1920.	Quantity (gross tons).	Value.	Quantity (gross tons).	Value.
Alabama	5,024,000	5,850,000	4,837,000	\$13,263,000	5,769,000	\$17,903,000
Georgia	80,000	89,000	85,000	389,000	91,000	474,000
N. Carolina	67,000	69,000	67,000	240,000	69,000	256,000
Tennessee	271,000	347,000	271,000	\$22,000	347,000	1,243,000
Virginia	288,000	308,000	280,000	1,150,000	296,000	1,118,000
	5,719,000	6,693,000	5,550,000	\$15,914,000	6,575,000	\$20,994,000

The Northeastern States in 1920 mined 2,027,000 gross tons of iron ore as compared with 1,814,000 gross tons in 1919. The Western States mined 734,000 gross tons in 1920 and 678,000 gross tons in 1919, and other States not included in the above classifications mined 176,000 tons of iron ore in 1920 as compared with 108,000 tons in 1919.

The shipments of ore from the mines in 1920 are estimated at 69,558,000 gross tons, valued at \$290,607,000, an increase in quantity of nearly 24 per cent and in value of nearly 43 per cent as compared with shipments in 1919. The average selling value of the ore per gross ton at the mines for the whole United States in 1920 was \$4.18; in 1919 it was \$3.61. The stocks of iron ore at the mines, mainly in Michigan and Minnesota, apparently decreased from 12,986,000 gross tons in 1919 to 11,145,000 tons in 1920, or 14 per cent.

The production of iron ore in 1920 was less than 2,000,000 tons below that of 1918, and is exceeded only by that of the war years 1916, 1917 and 1918. In 1920 shipments exceeded production by approximately 1,785,000 gross tons, but in 1919 production exceeded shipments by about 4,147,000 tons.

About 86 per cent of the iron ore mined and shipped in 1920 came from the Lake Superior district, in which 58,173,000 gross tons was mined and 60,056,000 tons was shipped, increases of about 12 and 24 per cent, respectively, as compared with the quantities mined and shipped in 1919. The ore shipped in 1920 was valued at \$257,543,000, an increase of about 43 per cent.

The imports of iron ore for the 11 months ending November 30, 1920, amounted to 1,145,139 gross tons, valued at \$4,438,958, or \$3.88 a ton. The imports for the year 1919 were 476,461 gross tons, valued at \$2,385,689, or \$5.01 a ton. The exports of iron ore for the 11 months ending November 30, 1920, amounted to 1,130,921 tons, valued at \$3,119,510, or \$5.41 a ton, as compared with exports for the entire year 1919 of 996,569 tons, valued at \$4,308,746, or \$4.32 a ton.

The total pig-iron and blast-furnace ferroalloys, principally ferromanganese, spiegeleisen and ferrosilicon, produced in the

United States in 1920 amounted to about 36,721,000 gross tons. Of this output approximately 36,411,000 tons consisted of anthracite and coke pig-iron and ferroalloys and 311,000 tons consisted of charcoal iron. In 1919 the corresponding quantities were 31,015,364 tons of coke and anthracite pig-iron, including ferroalloys, and 327,097 tons of charcoal iron, as reported by the American Iron and Steel Institute. The net increase in the total quantity of pig-iron produced in 1920 over that produced in 1919 was 18 per cent.

North Carolina Tobacco Crop for 1920 Shows Increase of 58,000,000 Pounds in Quantity, But Loss of \$53,000,000 in Value.

Raleigh, N. C., January 22.—[Special.]—The report on the 1920 tobacco crop in North Carolina shows the 582,000 acres produced 384,120,000 pounds, for which an average of 25.3 cents a pound was received. This is as against 326,000,000 pounds in 1919, with an average price of 51.63 cents. A great crop of largely inferior quality was grown in 1920, and the bottom fell out as to prices; so that though 58,000,000 pounds more were grown, the receipts of money were \$53,000,000 less. Yet North Carolina growers averaged higher by 10 cents a pound on the 1920 crop than the growers in other States except Wisconsin. There are said to be heavy stocks of 1919 tobacco yet on hand. December was the lowest month of the year, with an average of only 17.27 cents, as against 53 cents the same month in 1919.

There are 159 sales warehouses in the State at 47 towns. Wilson in 1920 again led the State in amount of pounds sold, 33,308,382; Winston-Salem was second, with 28,443,216; Greenville third, with 22,037,934; Kinston fourth, with 20,923,355; Rocky Mount fifth, with 15,491,088; Farmville (in the same county as Greenville) sixth, with 8,846,938; Henderson seventh, with 8,808,987; Oxford eighth, with 8,063,987; Durham ninth, with 7,775,482.

There will be a vast decrease in acreage this year, and this applies also to cotton. Considerable cotton, say 10 or 12 per cent of the crop, is yet ungathered. Some growers have been heard to say they would not pick any more unless prices advanced.

A tobacco exporting company has been organized at Henderson to manufacture and export, the capital authorized being \$2,000,000 and the incorporators R. J. Corbitt, C. D. Riggan and Samuel T. Peace, all of that town. Henderson is a good market. Mr. Corbitt is a well-known manufacturer of auto-trucks. The new company intends to build a factory at Henderson this year, and later to erect others at several points in the State.

New Oil Refinery at North Baton Rouge.

Baton Rouge, La., January 24.—[Special.]—The Constantin Oil and Refining Co. of Tulsa, Okla., has purchased a tract of land in North Baton Rouge on which it will construct a refinery, according to an announcement from responsible sources here. The plant will be located near the big Standard Oil refinery and will have a frontage on the Mississippi River, so as to secure both water and rail connection.

The company's plant at Tulsa was recently burned, and as soon as that is rebuilt the construction of the Baton Rouge plant will begin. A pipe line will connect the refinery with the North Louisiana and Oklahoma and Arkansas oil fields.

The company's object in building a refinery at Baton Rouge is to be in position to handle export and import oil trade on a large scale. Tank steamers will be able to dock at the Baton Rouge factory to load and unload cargoes. The company expects to refine a large amount of Mexican crude oil.

Thorough Trial Urged of Present Merchant Marine Act

SENTIMENT OF ASSOCIATIONS REPRESENTING TRADE INTERESTS OF MIDDLE WEST AND SOUTH ATLANTIC STATES UNANIMOUSLY IN FAVOR OF FULL DEVELOPMENT OF AMERICAN-OWNED MERCHANT MARINE AIDED BY IMPROVED PORTS AND WATERWAYS—FAVORABLE EXPORT RATES TO SOUTHERN PORTS UPHOLD.

[Special Correspondence Manufacturers Record.]

Washington, January 22.

There met in Washington during the past week three conventions widely different in fundamental programs, but all united in one point—the need for development of the American merchant marine. These bodies were the Mississippi Valley Association, the South Atlantic States Association and the National Merchant Marine Association. Delegates from the Middle West, that vast empire with 54 per cent of the nation's population and with a gigantic proportion of the manufactured and raw products of the nation, manifested a keen interest in and an understanding of the needs for the development of our South Atlantic and Gulf ports as essential outlets for their export trade and vied with nationally known men and with those of our Southeastern States in declaring that an American owned and operated merchant marine was an essential for the maintenance of these ports and for the handling of this trade.

Underlying the meeting of the Mississippi Valley Association and of the South Atlantic States Association was the belief frequently manifest that the Eastern trunk lines were again on the eve of launching a campaign for the doing away with the parity in rates as between South Atlantic and Gulf ports and ports of the North and East, included in the latter being the Canadian ports. It was the contention of the speakers that the "neck of the bottle"—the Northeastern ports—must, whenever traffic became such as the productivity and manufacturing resources warranted, be choked as it has been choked in the past. The fearful congestion which was a part of our trade condition only a few months ago would be repeated again and again unless the ports of the South were opened and kept open with an American merchant marine operating therefrom to handle the traffic.

Identical resolutions approving the Merchant Marine Act, equal export freight rates to all Atlantic ports and the establishment of new foreign trade routes were adopted by the Mississippi Valley Association and the South Atlantic States Association and presented by a joint delegation to Senator Wesley L. Jones of Washington, chairman of the Senate Committee on Commerce.

A plan looking to the scientific and systematic development of the inland waterways of the country was laid down by the Mississippi Valley Association and it was recommended that Congress enact such legislation as would aid in the development of our foreign commerce. Formation along the lines of the War Finance Corporation of a foreign trading corporation with the debt of our allies funded and forming security for the capitalization was outlined in a questionnaire which was submitted by H. H. Merriek, president of the Mississippi Valley Association. Mr. Merriek in speaking on the questionnaire sharply arraigned the present Treasury personnel for its failure to realize the seriousness of the situation confronting the nation and characterized its post-war action in abolishing the War Finance Corporation as similar to that of a man who destroys and wrecks the machinery of his plant without a blueprint or drawing in sight for rehabilitation.

At the session of the National Merchant Marine Association on Thursday morning charges were made by Senator Wesley L. Jones of Washington, chairman of the Senate Committee of Commerce and author of the Merchant Marine Act of 1920, that a campaign has been carried on for years and is still being carried on by British interests to destroy the American merchant marine. Mr. Jones' declaration that in 1903 the International Mercantile Marine Co., an American organization, owner of the American Line of Steamships, had entered into a written agreement with the British Admiralty to pursue "no policy injurious to the British mercantile marine or of British trade," and that by the terms of this same agreement the Lord High Chancellor of Great Britain was named as the arbiter, whose decision was to be final in case of any dispute arising between the American company and the British Admiralty precipitated a sensation. Before

Senator Jones left the Hall of Nations, where the meeting was being held, Mr. P. A. S. Franklin of the International Mercantile Marine asked to reply and defended the International Mercantile Marine as an American corporation with American ownership and American officials. Admiral Benson, chairman of the United States Shipping Board, has asserted that the charges made by Senator Jones will be investigated. Admiral Benson is quoted as being not in sympathy with the agreement, declaring that our merchant marine must be 100 per cent American.

Senator Jones named as unwitting or witting agents of the British shipping interests in this campaign to throttle the growing American merchant marine the United States Chamber of Commerce and its magazine organ, *The Nation's Business*; the Chamber of Commerce of the State of New York, an agent of the United States Shipping Board of New York; international bankers and the heads of great railroads and steamship companies.

Senator Jones charged that one of the methods now being employed by British shipping interests to hamper the expansion of the American merchant marine is to encourage Eastern trunk line railroads to seek cancellation of existing equalized export rates to all Atlantic ports.

In proof of the alleged relations between British shipping interests and the trunk line railways, Mr. Jones said: "On April 9, 1920, there was a meeting of the Chamber of Commerce of the State of New York at which a committee of five representatives of North Atlantic port commercial organizations was appointed to confer with the Trunk Line Association with a view to conducting the fight before the Interstate Commerce Commission for the State of New York at which a committee of five representatives of North Atlantic port commercial organizations was appointed to confer with the Trunk Line Association with a view to conducting the fight before the Interstate Commerce Commission for the elimination of the existing equalization of export rates from a Central Freight Association and Illinois classification territory to North Atlantic, South Atlantic and Gulf ports. The present equalization, for the first time, establishes the principle that American foreign commerce may best be developed and extended by the establishment of new foreign trade routes by the United States Shipping Board, as is specifically provided in the Merchant Marine Act, and in furtherance of the movement that every American export shipper should have the right without discrimination by the railroads to choose the port through which his business can be handled most expeditiously and economically."

Strong pleas for the abrogation of tolls on all American ships through the Panama Canal were made by Senator Ransdell of Louisiana, president of the National Merchant Marine Association, and by former Congressman William E. Humphrey of Seattle, Wash. Mr. Humphrey argued that we had every right in law and equity for abolishing tolls on American vessels and declared that timber and fruit growers and fish canners of the Western coast would be satisfied with such profit on their goods as is now represented by the amount paid in canal tolls on their shipments.

Homer L. Ferguson, president of the Newport News Shipbuilding & Dry Dock Co., declared that, if necessary, the United States should enact discriminatory legislation to hold its place upon the high seas. Mr. Ferguson said that the nation if it is to have a merchant marine must be willing to pay for it. A Government subsidy in some form or preferential treatment must be given to prevent the withdrawal of interest from the maintenance of an adequate fleet, he said. The objection to a plain subsidy is that it must be enacted each year, said Mr. Ferguson, and thus become the football of politics. If any scheme can be devised, he said, it must have the elements of permanence.

All of the speakers at each of the conventions urged that the present Merchant Marine Act be given a thorough trial; though admittedly not perfect, it at least offered a basis upon which a mercantile marine might be built, and that it were well to try it out thoroughly before contemplating the framing of new legislation.

Rapid Deflation by Federal Reserve Board Brought Wholly Indefensible Suffering and Loss

GOVERNOR DAVIS OF VIRGINIA REVIEWS DISASTROUS RESULTS OF UNWISE FINANCIAL POLICY—UNIVERSAL OPTIMISM CHANGED TO PESSIMISM, WITH RUIN TO FARMERS. DEPRESSION TO INDUSTRIES AND WIDESPREAD UNEMPLOYMENT—ACTION URGED TO RESTORE TO NATION PROSPERITY WHICH IS RIGHTFULLY OURS.

By WESTMORELAND DAVIS, Governor of Virginia.

The year 1921 finds the country with a large crop, with glutted markets and low prices. Mills are closing, and labor is largely unemployed. This is in striking contrast with the preceding year, when prices were high, the productive power of the country busily engaged and labor in active demand. It becomes interesting to consider the causes for this rapid change in our economic status.

During the war the Government was engaged in vast enterprises, which directed industrial effort to war activities. Great sums of money were required in the conduct of the war, and to meet these demands the Government sold bonds, and these, with the free use of the discount power of the Federal Reserve Bank, inflated the currency; the purchasing power of the dollar decreased, bringing high prices.

In the early part of 1920 those in charge of the finances of the country, in order to increase the purchasing power of the dollar, entered upon a policy of deflation by the limitation of credit. The effect of this policy, when our farmers had large crops unmarketed and our manufacturers and merchants were loaded down with large stocks, was to create a feeling akin to panic in our industrial life. The mental attitude of our people changed from optimism to pessimism, buyers withdrew from the markets and a process of grilling liquidation set in, bringing with it ruin and despair.

Our farmers had been urged, on the ground of patriotism, to increase production, not only during the war to maintain our armies abroad, but later that we might provide for starving Europe, and to our industrial life the needs of Europe in its rehabilitation had been portrayed in glowing terms as a reason for increased and continued productive activity. Indeed, before the war increased production per acre and the bringing into cultivation of unused lands had been the slogan of Government agencies sent among our farmers. The rapid deflation by the limitation of credit was as cruel as it was unnecessary. The incident falling prices ruined farmers, closed manufactories and created a vast army of unemployed. Unemployment creates social unrest and distrust of Government, while decreased production, if carried to its logical end, means the same high prices from scarcity that had existed from an inflated currency. A vicious circle strewn with disaster will have made an impoverished and resentful people.

Deflation, when necessary, could have been accomplished by increased production accompanied by the inauguration of proper methods of distribution at home and abroad. Money is a medium of exchange, and its purchasing power is increased or decreased in the relation that it bears to the commodities for which it is exchanged. Increased production means a higher purchasing power of money.

The Federal Reserve System carried us safely through the trying period of the war. Its chief features that rendered liquid and elastic the assets of the banks and distributed their resources throughout the country gave confidence to our people and strength to our financial conditions. The limitation of credits by increasing to the limit the discount rate has rendered the system rigid and has made it unprofitable to member banks to use their discount privilege unless in violation of law they charge rates of interest in excess of the legal rate that would render the use of the discount rate profitable. In the great centers money brought fabulous returns, and was attracted from the smaller centers, where distress ensued. The speculators, who gamble for large profits, and those in dire necessity, who had satisfactory collateral, secured money, while legitimate business suffered. The Reserve banks, that are part of a system created in aid of business, and that were intended to make no profits, rolled up enormous surpluses.

The Federal Reserve System consists of 12 regional banks.

The Aldrich plan, to which the present plan was preferred, proposed one central bank, with branches wherever necessary. The present system was adopted because of its supposed decentralization, but the power exercised by the Federal Reserve Board in the administration of the Federal Reserve System has practically made it a central bank, for the system is absolutely dominated by the Federal Reserve Board at Washington and the Secretary of the Treasury. The Federal Reserve Board should be liberalized in its membership; made more representative of the varied industrial interests of the country.

We are told that the law of supply and demand must govern in this reconstructive period. In the name of this economic law the people have been sadly sinned against. The artificial conditions under which we live often render this law inoperative. An extraordinary situation requires unconventional thought and the appliance of remedies suitable to such an occasion. What is the remedy?

The Federal Reserve Board should lower the discount rate, especially to those engaged in the production of the essentials of life, the staple industries; they should sound a note of hope that would change the mental attitude of our people to one of optimism. We are the richest nation of the world. We spent billions to win the war, and now that the victory is ours, should not be led into the slough of despair. We have an enormous surplus production, and Europe needs it all. The hundreds of millions overseas who would buy are not bankrupt, for the skilled man-power alone, with factories and industries unharmed, are in themselves potential wealth. Europe has vast resources that can be made available for credit, such as tobacco monopolies, potash deposits, railroads, public utilities and customs receipts. These can be segregated as security for money to be spent here, and a new-found prosperity will stabilize exchange. Raw materials sold by us could be returned as a finished product with a first lien to the seller.

A. Barton Hepburn of the Chase National Bank of New York, in an address delivered at the meeting of the Academy of Political Science, stated that "in the city of Prague we made a syndicate, bought nine millions' worth of raw cotton, sent it to them (and are sending it to them), for which they execute a trust receipt, agree to hold the cotton as the property of the syndicate and to manufacture it into finished goods and sell into the markets of this country enough of those finished goods to pay the original cost, the balance to be used as they see fit. In that way you will notice we get rid of the exchange which runs so strongly against them; they sell their product here; they make dollar exchange; they avoid the high rates of exchange; the same has been done in copper."

Again: In England, to prevent revolution, road construction and public works are being initiated by the Government, which is also seeking to open credits for continental countries that need goods they are unable to buy. The stabilization of exchange is also under consideration by the British Government, which would avoid riot by increasing industry and commerce.

An executive budget should be inaugurated in the Federal system.

Governmental expenditures should be drastically reduced, methods of Federal taxation should be reformed and taxation itself reduced; our whole national energy should be directed to making secure for our people the prosperity and happiness that should come with peace. The leading nations of the world should be called in conference. In war time they met for purposes of destruction; now they should reassemble that the blessings of peace may be realized.

The aftermath of war should, from an economic stand-

point, be considered a part of the war itself. We should turn with enthusiasm to the solution of these post-war problems, and those in authority should not make us afraid.

We should open to our industrial life the markets of the world, in order that our honest endeavor may be vitalized and not destroyed. The prosperity that is rightfully ours will come through increased discriminatory credits and wider markets, domestic and foreign. **We should build, and not wreck.** The people have but to speak, and they will not be denied.

Salisbury Building Program Involves \$1,000,000 in 1920 With Bright Prospects For This Year.

Salisbury, N. C., January 24—[Special.]—According to J. W. Webb, city engineer, building operations in this city during 1920 involved a total expenditure of upward of \$1,000,000. Much of this amount was for manufacturing plants and business houses, but many residences were erected. A total of 121 permits were issued during the year, including the following: Salisbury Ice and Fuel Co., \$30,000, improvements; Diamond Cotton Mills Co., \$30,000; Kesier Cotton Mills Co., \$25,250; Livingstone College, \$13,000; Rouzer Motor Garage, \$150,000; Belk-Harry Co., store improvements, \$27,000; Salisbury Cotton Mills, employes' homes, \$25,000; V. Wallace & Sons, building for Purity Ice Cream Co., \$20,000; Vance Cotton Mills Co., residences, \$15,000, and plant additions, \$26,000; Walker Lumber Co., \$8,000; Rowan Damp Laundry Co., \$12,000; Moore's Chapel Church, \$25,000; People's National Bank, \$80,000; Klumac Cotton Mills Co., \$20,000. A modern mill village and an entirely new mill at an estimated cost of \$350,000 to \$400,000 was constructed by the Rowan Cotton Mills Co.

The total amount of street, sewer and water main extension work completed during 1920 cost upward of \$265,000, in addition to the \$1,000,000 expended for building improvements.

It is predicted that this year many additional residences will be constructed and that the industrial and business house program will be extensive and involve the expenditure of hundreds of thousands of dollars.

Meeting in Interest of Hampton Roads Ports Development.

Norfolk, Va., January 24—[Special.]—The meeting in Richmond on February 5 of the recently appointed Hampton Roads Commission is expected to formulate a definite program for Virginia's participation in the development of the Hampton Roads ports. This commission was created by an act of the last General Assembly, and Governor Davis has completed the personnel of the body. Homer L. Ferguson, president of the Newport News Shipbuilding & Dry Dock Co., one of the members from the State at large, is being mentioned for chairman of the commission.

Mr. Ferguson is a former president of the Chamber of Commerce of the United States, and is one of the best-informed men on shipping matters in the country. He is considered one of the best men in the State for chairmanship of such an organization.

The other members of the commission are: N. D. Maher of Roanoke, president of the Norfolk & Western Railroad, and Lee Long, a coal operator of Dante, Va., both members from the State at large; State Senators W. C. Corbitt of Portsmouth, Andrews of Roanoke and Garrett of Tazewell, and Delegates John W. Cherry of Norfolk, J. E. Wilkins of Newport News and Nelson Groome of Hampton.

Would License Engineers and Architects.

Charleston, W. Va., January 18—[Special.]—A bill introduced in the West Virginia Legislature by Delegate Weiss of Ohio county provides for the creation of a State board of registration for professional engineers and architects. The bill would make it unlawful for any person within six months after the passage of the bill to practice professional engineering or architecture without having obtained a license so to do.

Large Paper Mill May Be Erected at Monroe.

New Orleans, La., January 22—[Special.]—R. D. Forbes, chief of the State Forestry Department of Louisiana, is authority for the statement that a large paper mill, capitalized at \$2,000,000, will be constructed at Monroe, La., and will carry with it a gigantic scheme of reforestation in that section of Louisiana.

Mr. Forbes says the negotiations for the establishment of the plant have been completed, but the details are not ready for publication yet.

The mill is to be located at Monroe on account of the abundance of wood waste from sawmills in that part of the State is suitable for paper-making purposes and on account of the cheap fuel available from the Monroe gas fields.

The State Forestry Department will co-operate and aid in the plan of reforestation so as to insure the paper mill a supply of raw material after the waste products from the sawmills are exhausted.

In addition to pine and cypress there are large quantities of gum timber and willows in the Ouachita River Valley that will make high grades of paper.

Good Building Progress in Perry, Okla.

Perry, Okla., January 20—[Special.]—Building construction during 1920 broke all previous records, and there is little indication of a let-up, except in the way of municipal improvements. Permits for private work totaled \$647,300, and consisted of 56 new residences, 34 remodeling jobs, 59 garages and miscellaneous small structures, and 14 business buildings and semi-public structures. In addition to the above, the city let contracts for public improvements to cost \$273,240, consisting of new water filtration and pumping plant, electric-light plant, reservoir, concrete dam, pipe lines, electric transmission lines, water-main extensions, "white way" street-lighting system, more than a mile of new sidewalks and other minor improvements. The total operations amounted to approximately \$920,540.

Business building operations were light during the last quarter, but residence construction showed a considerable gain, due to the approaching completion of the public-service plants and better water service and fire protection, and also to the discovery of oil by the Prairie Oil & Gas Co. a few miles north of the city.

Will Increase Telephone Facilities at Norfolk.

Norfolk, Va., January 24—[Special.]—Improvement and extension plans calling for the laying of four additional cables serving outlying sections of the city have just been announced by the Chesapeake and Potomac Telephone Co. of Virginia. This work will cost approximately \$189,000. Of the four cables to be put down, one will have 900 pairs of wires, while the other three will carry 1200 pairs each.

During the past 12 months more than 9000 new subscribers have been added to the telephone company's list in the Norfolk district.

The Portsmouth (Va.) City Council is demanding that the company proceed at once to install an automatic telephone system like that put into operation a year ago in Norfolk. The City Attorney of Portsmouth has been instructed to file suit to enforce an alleged agreement to install the dial telephones.

Monongahela Valley Association Formed.

Morgantown, W. Va., January 24—[Special.]—Commercial organizations of the Monongahela Valley were welded into one compact organization at a meeting of representatives of the chambers of commerce of Clarksburg, Fairmont, Grafton, Shinnston and Morgantown, held in this city on Monday, January 17, when the Monongahela Valley Association was formed. G. D. Thelen, managing secretary of the Clarksburg Chamber of Commerce, was elected secretary.

Steel Ships Built At Mobile Encircling the Globe

DEVELOPMENT OF SHIPPING FACILITIES AT MOBILE TO GO FORWARD ON BROAD LINES—
\$10,000,000 EXPENDED BY NATIONAL GOVERNMENT ON WARRIOR RIVER IMPROVEMENTS NOW YIELDING GREAT BENEFITS.

[Special Correspondence Manufacturers Record.]

Mobile, Ala., January 6.

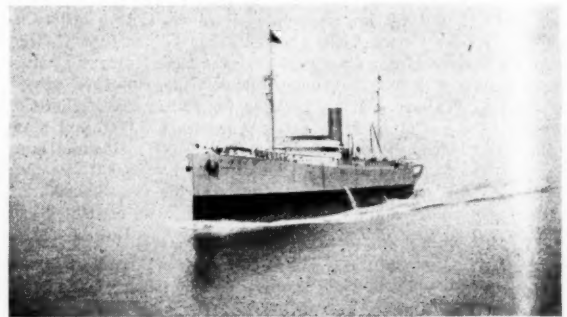
Mobile has decided to build its own additional water terminals and modern devices for freight interchange from ship to wharf or inland waterways carrier and for loading ships. This does not mean that further efforts will not be made so to amend the State Constitution as to permit Alabama to lend its credit for seaport development. The next regular session of the Legislature will convene in January, 1923, and that body will most certainly be requested to resubmit an amendment permitting port improvement similar to that voted down by a small majority at the election of November 2, 1920.

In the two years and more that must intervene before the State can act Mobile will not be idle. The failure of the seaport amendment has tied the hands of the State Harbor Commission in so far as constructive work for the port is concerned. This work must now devolve upon the municipal government and private or corporate enterprise.

With this condition of affairs in mind, President George D. Lining of the Mobile Chamber of Commerce has appointed a port committee composed of shippers, bankers and industrial leaders. It will be the duty of this committee to make a complete survey of the entire situation as affecting water transportation, freight interchange and storage facilities. Its members will sit as a jury and weigh all proposals for port improvement, and will then devise ways and means for carrying out such plans as are approved as practicable and necessary. The committee is expected to give all possible assistance to the port and harbor authorities and to seek the passage of such legislation, State and municipal, as will enable Mobile to meet the needs of the city's growing commerce.

D. R. Dunlap, president of the Alabama Dry Dock & Shipbuilding Co., has been drafted to serve as chairman, and the other members of the port committee are Perrin Bestor, vice-president First National Bank; T. K. Jackson, general manager Mobile Electric Co.; J. H. Jones, Page & Jones, ship brokers; Ernest F. Ladd, president Merchants Bank; Mark Lyons, McGowin-Lyons Hardware & Supply Co.; Gordon Smith, President Smith's Bakeries; A. L. Staples, president Peoples Bank, and R. V. Taylor, steamship agent and importer. George D. Lining and P. A. Fenimore, president and general secretary, respectively, of the Chamber of Commerce, are ex officio members.

Influential members of this committee are known to be in favor of the completion by the municipality of the Arlington docks, upon which the greater part of a bond issue of \$600,000 already has been expended. Left as it is, this investment becomes almost an entire loss, while an estimate has been made that the property can be connected by rail with the Louisville & Nashville Railroad nearby, warehouses built and the docks made a going concern, in a limited way, at an expense not exceeding \$150,000. The Arlington docks, with a total of 7200 linear feet, are at the extreme southern end of the port and three miles from the business center of the city. A dredged channel and turning-basin



STEAMSHIP TUSCALOOSA CITY, LATEST VESSEL LAUNCHED AT CHICKASAW PLANT, ON TRIAL TRIP.

connects with the Mobile ship channel. This, with the central municipal wharf, 1500 feet, would give the city ownership and control of berthing space for 20 steamships of average length.

Others advocate the deepening and widening of Three-Mile Creek, at the northernmost extremity of the city and port, as offering a better protected haven. Both plans may be approved and adopted for promotion by the committee.

Mobile's bonding capacity, limited to 7 per cent of the city's valuation for assessment, has been so increased that the municipal government may find means to carry out its original plans for



SELF-PROPELLING BARGE BIRMINGHAM IN SERVICE ON WARRIOR RIVER.

terminal improvement that were temporarily halted by limitation of power to issue bonds and borrow money on the city's credit.

The deep concern shown by shippers and shipping interests in Mobile for extension and improvement of port facilities is due to the rapid increase of the seaport's commerce since the completion of the Warrior River system of slack-water navigation from Mobile to the coal mines, steel plants and iron furnaces of the Birmingham district. Port records show that 858 vessels, aggregating 1,241,338 tons, entered the port of Mobile during the year 1920, making a new record for recent years. Steel, pig-iron, cast-iron pipe, sugar-mill machinery, coal, lumber, cotton and naval stores were the largest items of export, while bananas and other tropical fruits, nitrates and manganese ore formed the greater part of the importations.

One authority on local shipping matters has made an estimate showing that the port of Mobile, with its present docks, warehouses and equipment, is capable of handling 3,000,000 short tons of freight per annum, so there is no great and immediate neces-

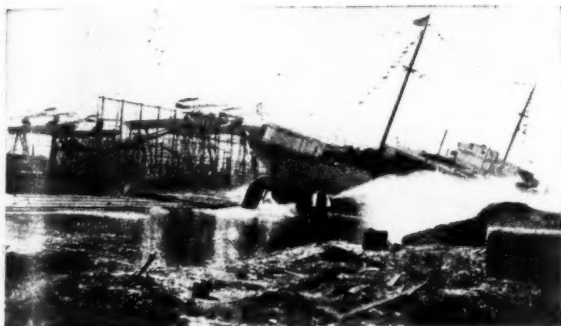
hold 40,000 tons of coal. A steel unloading bridge 500 feet in length and Gantry crane with electric hoist will permit the loading of ships at the rate of 500 tons per hour from the storage pile. Barges will be unloaded with the same equipment, though not so rapidly. The site has a frontage of 1500 feet, extends across the island to Polecat Bay, and contains 70 acres. This will permit the addition of two other units and the bisection of the site with a canal that will reach an immense storage pile, where the Shipping Board is expected to accumulate emergency coal. The rail rate on coal from Cordova, chief coal dump on the Black Warrior, is \$2 per ton, while the water rate is \$1.75. One of the self-propelling barges, or a towboat pushing the usual four wooden barges, brings down 2000 tons of coal at a load, effecting a saving in freight of about \$1250 for each shipment.

The Warrior service is equipped with four self-propelled steel barges—the Birmingham and Tuscaloosa, now in commission, and the Mobile and Gulfport, now nearing completion at St. Louis. The Birmingham has amply demonstrated the fitness of this type of vessel for the service required. In addition to these, there are three new towboats—the Cordova, Demopolis and Montgomery—each developing 900 horse-power and capable of handling six barges up or down stream. The larger barges have protected space for 500 tons of miscellaneous cargo.

There are 43 wooden barges in the fleet, and these are handled with such expedition that steamships are loaded with steel plates or rails or cast iron pipe in midstream, and unloaded of their manganese ore onto the same barges that brought the steel and iron products. This interchange of cargo is effected with the ship's derricks, working from every hatch and from both sides of the ship, and without loss of time waiting for barges. No such dispatch could be achieved where a vessel is at the wharf, loading from or into railroad cars, which have to be shifted when filled or emptied, and dispatch means much in the handling of large steamships. Also, there is no demurrage on barges in event of delay on the part of the ship in taking cargo.

Freight is now being received or discharged by Government barges at Cordova, Gorgas, Birmingham, Fox, Tuscaloosa and Mobile, Ala.; Violet and New Orleans, La. A top load of timber frequently is taken on at Fox, where has been installed a derrick capable of picking up eight or ten sticks of timber at a time. This, with coal, iron or steel, makes an ideal combination of heavy and lighter freights.

With its 17 locks and dams, the Warrior system cost the Federal Government about \$10,000,000, not including the expenses of operation and maintenance. The locks raise vessels traveling upstream to a total height of 244 feet above sea level, and lock No. 17 is 388 miles above Mobile. The minimum depth of the river for navigation is eight feet, since a structure two feet high has been added to most of the dams to increase the depth during the lower stages of the rivers. None of the barges, either Government or privately owned, ever load to six feet except during high

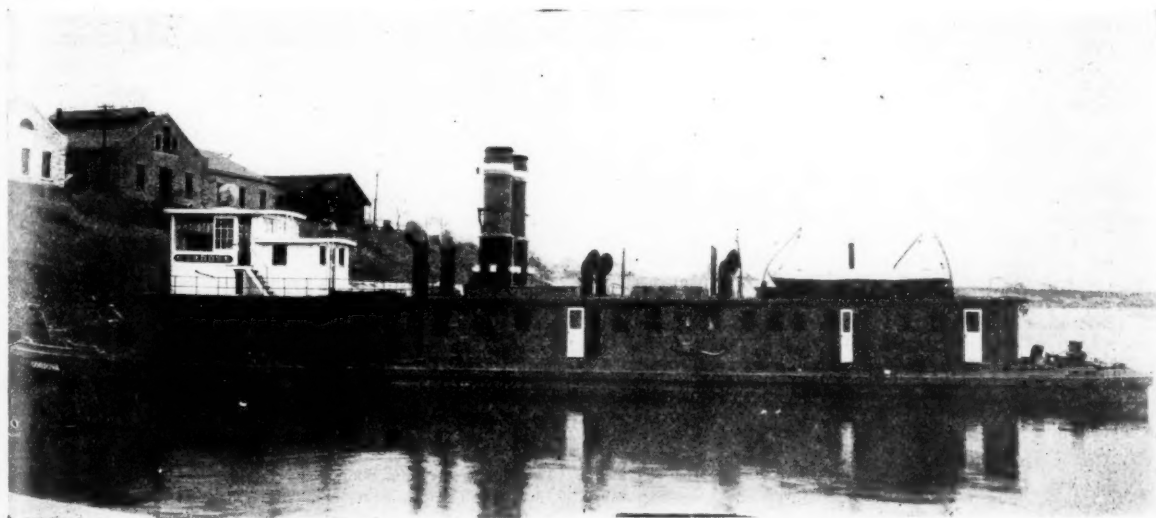


SIDEWAYS LAUNCHING AT CHICKASAW OF 10,000-TON STEAMSHIP TUSCALOOSA CITY.

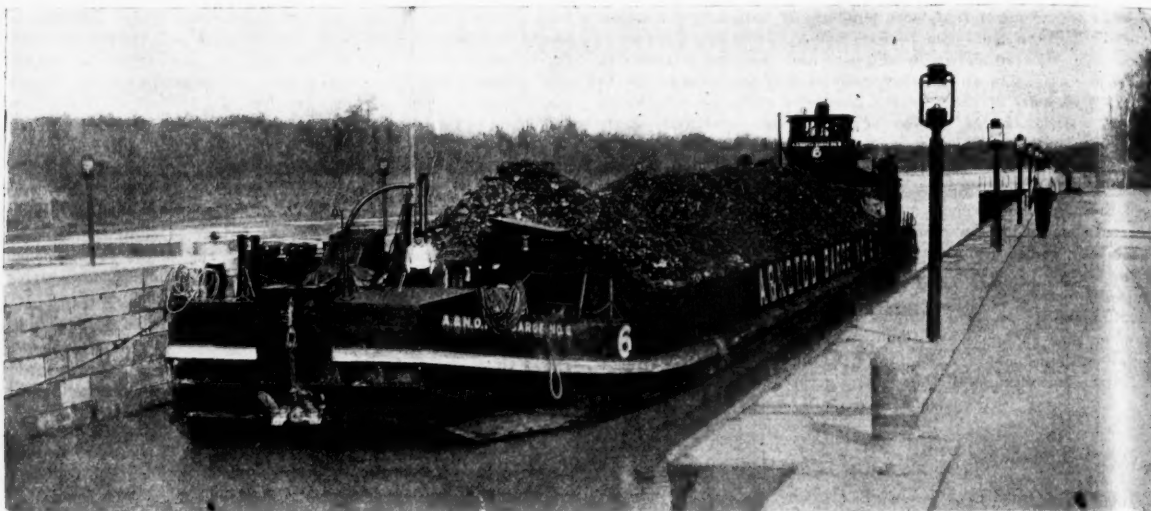
sity for the extension of these facilities, except that more modern loading devices are needed to insure greater dispatch in the loading and unloading of vessels.

Facilities for handling bunker and export coal at Mobile will be practically doubled with the completion of the coal terminals on Blakeley Island, nearly opposite the center of shipping activities. The War Department has allotted \$400,000 for this purpose, plans have been completed by Government engineers, the site has been purchased with money raised by popular subscription, turned over to the War Department and accepted. Wash borings and other foundation tests have been made, and the work of construction will begin without delay.

The first unit of the Government's coal terminal will have a frontage on the river of 500 linear feet, and its storage pile will



TWIN-SCREW TOWBOAT CORDOVA, A NEW UNIT OF THE WARRIOR SERVICE NOW OPERATING OUT OF MOBILE.



BARGE LOAD OF COAL, IN LOCK No. 11, WARRIOR SYSTEM, NEAR TUSCALOOSA, ALA.

water. The smallest of the locks is 51½ feet wide and 281.9 feet long, and the big barges fit in the locks with scarcely a foot to spare all around.

It is expected that the Warrior system, with the new and improved equipment provided, will move 1,250,000 tons of freight during the year 1921. More down-river business is offered than can be handled, and the problem of the Warrior service is to increase the up-river business. Merchants are beginning to take advantage of the joint rail and water rates, which are 20 per cent cheaper than all-rail rates between the same points. To bring about a more general use of the waterways for this purpose is largely a matter of education and of increasing the leading and storage equipment at the river ports. The issuance of through bills of lading on rail and water shipments has removed one of the former objections to the use of the rivers as freight carriers.

When it became necessary to raise \$37,500 for the purchase of the site for the Government coal terminals, committees from the Chamber of Commerce visited the business people of the city and in two working days the sum of \$42,000 was subscribed by local firms and individuals. The coal operators of the Birmingham district in the meantime sent in \$15,000, making \$57,000 in all that would have been available in case of need. This action was taken immediately after the city government reported that it would not and could not legally make a donation of the site.

It has cost the Government more than \$9,000,000 to provide a channel 33 feet deep and 450 feet wide across the Mobile bar and a ship channel 30 feet deep and with a minimum bottom 200 feet wide covering the 33½ miles from the bar to the upper extremity of Mobile harbor. When this work was started, in 1826, no vessel drawing more than five and one-half feet could reach Mobile, except with the high tide, and the commerce of the port was conducted by lighters to ships lying in the anchorage basin in the lower bay. The first project gave a channel of 10 feet depth by cutting through several sandbars that made out from the mouths of small streams entering the bay from the west side. This project was completed in 1857, and nothing further was attempted until 1870-76, when the channel was deepened to 13 feet. In 1896 the depth was made 23 feet and the top width 280 feet, which was quite sufficient for the vessels plying the Gulf at that period. Since then, by progressive stages, the channel has been widened, also deepened to 30 feet, which is sufficient for loaded vessels of about 12,000 to 13,000 gross tons. Few merchant vessels of greater tonnage than this seek the Gulf ports. Today carriers of about 6000 gross tons seem to be the favored class of cargo carriers for long-voyage trade. About 99 per cent of the steamships are shown by Lloyd's Register to draw 30 feet or less; still, Mobile will insist upon an ultimate depth of channel not less than 33 feet.

The greatest immediate benefit and source of prosperity for Mobile growing out of waterways development comes from the establishment here of shipbuilding plants. This was due directly

to the cheaper freights on structural steel, steel plates and coal. During the year 1920 eight steel ships, with an aggregate of 58,400 deadweight tons, were launched at Mobile shipyards, and another one of 10,000 tons will have been launched before this is published. Many barges of from 400 to 1200 tons also were constructed at Mobile yards during the year, four large companies being engaged in this class of work. During the same period nearly \$4,500,000 was paid out at Mobile for ship repairs at the several dry docks and repair shops.

The Chickasaw Shipbuilding & Car Co. launched during the year the Birmingham City, Mobile City and Ensley City, each of 9600 tons deadweight; the Montgomery City and Tuscaloosa City, each of 10,000 tons. It is announced that the Bessemer City will be launched at some time in January. Six uncompleted vessels now on the ways at the Chickasaw yards are the Bessemer City, Fairfield City, Selma City, Anniston City, Atlanta City and Memphis City, besides several large steel barges. All of the steamships now being built at the Steel Corporation's plant are of the shelter-deck type, known as the "Chickasaw type," identical with the Montgomery City and the Tuscaloosa City. On being completed these vessels load with Alabama steel, iron and other products for the Orient or for European ports.

All of these things combined have brought to Mobile, in the two hundred and tenth year of its age, a widely diffused prosperity such as was not dreamed of in the "grand old days" when cotton was king.

Meeting of North Carolina Society of Engineers.

Raleigh, N. C., January 18.—[Special.]—A large and enthusiastic meeting of the North Carolina Society of Engineers was held here on January 15. Prominent engineers from all over the State were in attendance. Besides the election of officers for the ensuing year, the most important matter before the meeting was the licensing of engineers and surveyors. A committee from the society, appointed at the annual convention, held last August, had prepared a proposed law and submitted it to the State Legislature, now in session. Various points in the law were discussed, and means devised for assuring the passage of the bill, which has already been favorably acted upon by the Senate Committee on Propositions and Grievances.

Dr. W. C. Riddick was again re-elected president of the society; Mr. R. E. Snowden, highway engineer, Kinston, N. C., vice-president, and Prof. Harry Tucker, secretary-treasurer. The following members of the board of directors were elected: Mr. Chas. E. Waddell, consulting engineer, Asheville, N. C.; Mr. Curtis A. Mees of Mees & Mees, consulting engineers, Charlotte, N. C., and Mr. W. S. Fallie, State highway engineer, Raleigh, N. C.

The North Carolina Society of Engineers is the State Assembly of the American Association of Engineers. The society has been in existence only a few years, and already has a membership of 225.

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EMPLOYEES WOULD TAKE OVER ROAD.

Offer to Buy Line Follows Proposed Wage Reduction on Atlanta, Birmingham & Atlantic Railway.

Employees of the Atlanta, Birmingham & Atlantic Railway Co. will make an offer to purchase the property and operate the road rather than accept the proposed wage reduction of 50 per cent of all increases made since 1917, which it proposed to put into effect on February 1, according to a report from Columbus, Ga., although it does not seem to be expected that the owners will consider selling.

In a circular-letter addressed "To All Employees," President B. L. Bugg says he wishes to give each of them a plain statement of the reasons which make necessary the proposed reduction in wages. After noting the fact that the increases in freight and passenger rates authorized by the Interstate Commerce Commission had not covered the increases in wages and costs of materials, as they were intended to do, he says that actual results of operation since September 1, after these increases went into effect, have shown that the company's expenses for operation and taxes alone, not including any interest, have been about \$100,000 a month greater than its receipts from all sources. Losses by months were thus: September, \$110,893; October, \$84,878; November, \$92,192; December (estimated), \$100,000. For comparison the following figures are also given: Total payroll, 1917, \$1,847,330; 1920, \$4,203,998; increase, \$2,356,668, or 127½ per cent. In 1917, it is stated, the payroll was not quite half the gross revenue; in 1920 it was nearly three-quarters the gross revenue for the year.

Continuing, President Bugg says: "In arriving at the new basis of pay it has seemed that the fairest method is to base the reduction on the increases which have been made since December 31, 1917, and therefore the reduction will be one-half of the increases that have been received since that date." It is hoped that this will offset the amount by which the company is failing to meet operating expenses and taxes. Mr. Bugg also repeats his assertion that the action is independent, and has not been undertaken by agreement with any other road, nor has he discussed the subject with anyone representing any other line. He adds that the only way he sees to accomplish the results which are necessary is to ask each officer and employee to accept the wage reduction.

Concerning this notice from the chief executive of the company, the report from Columbus referred to says that notice has been given that the men will refuse to accept the wage cuts, the employees requesting that the matter be settled by arbitration.

L. W. Curtis, a veteran engineer on the Central of Georgia Railway, is quoted in the same report as saying that members of the brotherhoods do not want to strike; the men want to avoid any such action, and will make an offer to purchase the road. "Tentative plans," he is further reported as saying, "should the offer be accepted, call for operation of the road by the various brotherhoods." It is, however, noted that brotherhood members do not think that the company would sell the property even if offered cash.

Terminal Railway Chartered.

The Texas City Railway Co. of Texas City, Tex., with capital stock of \$500,000, has been chartered to build, operate and maintain a terminal railroad in and near Texas City, in Galveston county. The directors, it is stated, include A. S. Peabody of Peabody, Houghteling & Co. of Chicago and Alexander Smith of the same city; W. T. Armstrong of Galveston, Tex., and H. B. Moore and E. A. Bynum of Texas City. It is said that the new organization represents a merger of the Texas City Transportation Co. and the Texas City Terminal Co., and that it will take over 1200 acres of land, three miles of waterfront that is not yet developed, a grain elevator of 500,000 bushels capacity and 40 miles of switching and storage tracks. Connections will be maintained with the several trunk line railroads entering Texas City, as well as with the interurban railway that connects Galveston and Houston.

HUMBLE OIL & REFINING CO. BUILDING.



Under construction at Houston, Tex., for Humble Oil & Refining Co.; 250x120 feet; 9 stories; steel skeleton with reinforced concrete; brick walls; granite base; composition and tile roof; cement floors; steam heat; electric lighting; lifts; elevators; Clinton & Russell, architects, New York; Jas. Stewart & Co., Inc., contractors, New York and Houston.

Norfolk Building Trade Expects Revival in Short Time.

Norfolk, Va., January 24.—[Special.]—With several projects of large proportions to be announced shortly, the building trade in Norfolk is confidently expecting a substantial revival in building activities in a short time. Contractors consider the situation more favorable than it has been in over a year.

Adequate loans for financing home building is still one of the prime factors in the local situation. The building loan associations are several months behind the requests they have in hand, and there seems little likelihood that they will catch up until there is a decided change in the general financial situation. As soon as money is available, however, a great number of home-building projects will be started.

Homes built in Norfolk in 1920 were valued at only \$1,183,410, while in 1919 the total value for this class of buildings was \$3,791,436, according to annual report of the building inspector, which has just been completed.

The Norfolk Chamber of Commerce is making a survey of housing conditions with a view to finding some plan for the construction of homes, especially in the vicinity of industrial projects. While the situation is materially better than it was several months ago, there is need for more housing facilities to take care of new industries that have announced their intention of locating here this year, and officials of the Chamber say that a way will be found to provide all the housing that is needed for these projects, in the event that improved conditions do not automatically take care of the situation.

Large Sugar Shipments for Mexican Interior.

Monterey, Mexico, January 20.—[Special.]—Large shipments of both raw and refined sugar are being received in the interior parts of Mexico from the sugar-producing region of Western Mexico. They are coming by trainloads, passing through the United States border region in bond, as there is no direct railroad communication between the points of origin and the regions to which the sugar is shipped. It is stated that the sugar-cane crop in the Pacific Coast States of Sinaloa and Sonora was unusually heavy the past season, and that the sugar mills have had a good run. As a result of the shipments into the interior of Mexico the price of sugar has fallen materially, and a still further drop is expected to take place. According to reports, prospects are favorable for a wonderful revival of the sugar industry in Mexico during the next few years. American sugar planters who temporarily abandoned their properties are returning to their former homes in this country.

NEWS AND VIEWS FROM OUR READERS

[Publication in this department of letters from our readers does not mean that we either approve or disapprove the views expressed. We believe in a full and frank discussion of the mighty questions of the hour, for only in this way can the truth be found. Therefore we often publish letters with which we do not agree.—Editor Manufacturers Record.]

Another Suggestion About an International Alliance to Limit Armies and Navies.

W. A. LENEAVE, Manager Southern Timber Co., Crewe, Va.

Regarding the Wilson League of Nations or Mr. Harding's Association of Nations, I do not think it possible to work out a plan that will meet the approval of all nations, and even if you did, I do not believe any kind of league without force behind it will amount to much. There are some nations that do not understand anything but force, and force there must be to make those nations good. Therefore, I would like to lay before you a plan which I have been thinking over lately, and which I have already laid before Mr. Harding, who has promised to give it consideration at the earliest moment. It is as follows:

The President of the United States to call on all nations of the world to send accredited representatives to Washington for the purpose of organizing an international army and an international navy, to be formed of the present armies and navies of the world, this army and navy to police the world, and each nation volunteers to disband the balance of their army and to junk the balance of their navy as soon as this international army and navy is ready for service. Under such a plan, 10 per cent of the present navies of the world would form a formidable navy, larger than any of the present navies, the balance of 90 per cent to be junked. This, you see, will take a heavy burden off the taxpayers. Then each nation to furnish a certain number of troops to form this international army, and under this plan not over 50,000 would be required from the United States, each nation to bear its own expense for the upkeep of its portion of that part of the army and navy furnished and to keep it up to date.

The nations would voluntarily agree not to build any more war vessels, and this international navy would have free entry into all harbors of the world and see that every nation is living up to that agreement. While our own country would not require any watching, there may be some countries that would. The international army to have free entry through all States to go to the disturbance which may break out between two or more nations. All controversies arising between two or more nations which do not include domestic questions, such as immigration, race equality, etc., to be referred by those nations to the Hague Tribunal for adjustment, and when that court renders its decision there would be this international army and navy to see that each nation accepted the court's decision.

Under this plan I feel sure there would be no more wars, and there would never arise the necessity for any American troops to cross the ocean again, for the United States troops, in conjunction with the Canadian, Mexican, Central and South American troops, would be capable of preserving peace in this hemisphere, and the European troops would be capable of doing likewise in the Eastern Hemisphere. The high officials of this army and navy to be voted on and elected by the member nations, and their terms to run for one or two years, and then to be re-elected, thereby giving all nations capable of furnishing officials to handle these positions, which would avoid any jealousies arising among the nations.

I believe this plan will meet with the approval of all the foremost nations of the world, and if adopted will lighten the tax burden at least 90 per cent today, not taking into consideration at all what this burden will amount to in the future should not some plan be adopted to put a stop to building navies and armies. At present there seems to be a rivalry between England, Japan and America to see which can build the largest battleships, and you cannot expect any of these countries to stop unless all stop. I do not think it fair to the United States to accept Senator Borah's plan to call on England and Japan, in conjunction with the United States, to curtail their building program 50 per cent in the next five years on account of the Anglo-Japanese Alliance, which would leave those two navies too much larger than the

American Navy. As long as any nation continue to build navies, I, for one, and I believe I can speak for the great majority of Americans, want the United States to keep on building as fast as she can, regardless of the tax burden.

It seems from reading the daily papers that almost all the nations are in favor of doing something to prevent future wars and put a stop to building warships, and if they are sincere, now is the time to test their sincerity.

What a Virginia Business Man Foresaw in September Last.

Red Oak, Va., January 12.

Editor Manufacturers Record:

Please note the enclosed letter, which explains itself.

You have fought a hard battle, but the victory is almost complete. The enemy is taking all kinds of shelter, getting behind "any old thing" in sight—some even sticking their heads under the sand. If it wasn't so tragic, the show would be most enjoyable. Keep it up. The best people are behind you.

D. F. DUNLAP.

The letter enclosed was as follows:

Red Oak, Va., January 12.

Hon. R. A. James,

Washington, D. C.

Dear Mr. James—In September, 1920, I wrote you and predicted: "The present policy of the Federal Reserve Board will not only defeat the Democratic party, but is reasonably sure to break the 'solid South,' and that the welfare of the people was more important than the party. And all who stuck to the ship would go down with it."

I am glad to see that nearly all have "abandoned ship." I also see that three Virginia Congressmen attended a farmers' meeting this week at Lynchburg, Va., with "helping the farmer" in mind.

You gentlemen, of course, know the real source of the trouble, and it is absolutely useless to waste time until all, or at least a part, of the source is removed. Mr. D. F. Houston will keep you blocked just so long as you leave him as he is. Hon. Carter Glass only a few days ago practically boasted of this fact.

You gentlemen are rather late in the day taking up this matter; however, we are glad to see you move in the right direction.

If all the men we have sent to Washington will get right down to what they were sent there for, our real interest and the general good of the country, and not for the benefit of any particular party, we will all soon feel the effects of their labors.

Go after the "Czar." Get him out; do something. My lumber business has been practically closed for six months. Millions of houses are badly needed. Forget your party and see nothing but "us back home."

Yours truly,

D. F. DUNLAP.

Turning From Cotton to Cucumbers and Sweet Potatoes.

O. P. MCPHERSON, Secretary The Gloster Board of Commerce, Gloster, Miss.

The farmers in the vicinity of Gloster, Miss., are converting their former cotton acreage into diversified farms. A thousand acres of cucumbers have been pledged and contracted for with the Oscar Dowlin Food Products Co. of New Orleans, La., and this acreage will be followed with sweet potatoes. The latter crop will be ready for market in November of this year, and correspondence is solicited with those wanting sweet potatoes. The cotton acreage will be about 30 per cent of that of last season. A sweet potato canning factory and dryhouses are being contemplated by the Board of Commerce.

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THE IRON AND STEEL SITUATION

Pittsburgh District Steel Conditions.

Pittsburgh, January 24.—[Special.]—Taking the steel situation as a whole, the deliveries of steel by mills to customers are still very heavy, viewed in the light of the general quietness in business. Shipments are equal to production. Production is at the rate of about 28,000,000 gross tons of steel ingots a year, which means about 450,000 net tons a week of finished rolled steel. While production is only about 53 per cent of the existing capacity, it is only 10 per cent less than the average rate of production in the two best years before the war, 1912 and 1913. The comparison suggests how rapidly the demand for steel grows. A very active demand means a certain tonnage of steel, but a few years later the same tonnage means a very light demand.

As affecting the immediate future of the steel industry, say in the next month or two, the chief question is how much the present shipments exceed the actual consumption. Many buyers are taking somewhat heavier deliveries now than they really need, because for so long they did not get as much as they wanted, and in some cases when they placed orders it was with the definite understanding that they would take the steel no matter what the conditions might be at the delivery time promised. There seems to be no doubt that some consumers will very soon be so stocked up that they will call upon the mills to ship at lower rates, and thus production is likely to decline for a while, but this influence may not be very marked.

As to the attitude of the steel producers at this interesting time in the history of the steel market, it can hardly be said that they are either "optimistic" or "pessimistic," those adjectives indicating a kind of mental temperament rather than a judgment as to conditions. What can be said is that they are somewhat impatient. Manufactured steel products, made from the rolled steel as the mills sell it, have not come down proportionately to the prices at which rolled steel can now be bought. It does not do any good, of course, toward broadening the demand for steel if the steel mills sell steel cheaper and the manufacturing consumer holds up his prices to the general public or the actual consumers of the steel.

In general, the finished steel prices of the Industrial Board schedule of March 21, 1919, the prices to which the Steel Corporation adhered, are being maintained. Some cutting is reported, but it does not amount to much. It may be that the absence of important cutting is due simply to there being so little demand in the open market that there is not the incentive to cut. There are, of course, what are called according to common usage cut prices in the West, say at Chicago, but that is really simply the departure from the "Pittsburgh basing" that is always expected to occur when there is not enough demand to engage the entire capacity of the mills.

As to steel price prospects for the more distant future, there is practically no doubt that eventually they will be lower. Costs have been in process of liquidation for some time, and further reductions in cost are certainly to be expected. Most of the steel mills recognize, however, that the steel market is not going to be made in future on the basis of costs, but rather that costs will have to be made to suit the prices that buyers are willing to pay. Of course, pre-war prices are not going to be reached, but there is room for very substantial declines, still leaving prices above the pre-war basis. Steel prices could decline an average of about \$22 a net ton from the present schedule and still be 50 per cent higher than prices at the close of 1914, when prices were particularly low.

Corporation and Independents.

The wide divergence continues between the rates of operation of the Steel Corporation and the independents, respectively, this being an aftermath of the double market standard that prevailed in 1920, the Steel Corporation not advancing its prices, while the independents advanced their prices by various amounts. The Steel Corporation is actually operating at a higher rate than last September, not because it has more business, but because it has enough, and has better supplies of coal and coke. The rate is about 92 per cent of capacity, measured by steel ingots, while the independents, according to the common estimate, are running at about 25 per cent of their capacity. The condition is not sur-

prising, seeing that buyers last year were ready to contract with the Steel Corporation as far ahead as it would sell them, while they purchased from independents only for relatively early deliveries, while furthermore some of the business the independents had has been suspended or cancelled. A more interesting point is that in the past few weeks the Steel Corporation has been booking more business than the independents, chiefly, no doubt, with buyers who have been waiting for an opportunity to get on the Corporation's books and secure classification as a customer. As the Corporation is very rigid in the matter of prices, not being willing to sell at a cent a ton above or below its set prices, this business goes at regular figures, and there is no issue as to prices being cut.

The Corporation is not operating full in all departments, however. The American Bridge Co., the fabricating subsidiary, is running at rather a low rate, and there is a little idleness at the Chicago district plants. The Carnegie subsidiary is running at 96 per cent. The sheet and tinplate subsidiary is running about 95 per cent of its sheet mills and 80 per cent of its tin mills. Unless there is a rush of cancellations or postponements, the Corporation can run at approximately the present rate for two months without the aid of new business, while with new business continuing to come in at the present rate the operation could be maintained practically intact for about four months. Afterwards production would tend gradually to decrease.

The independents, on the other hand, are operating from hand to mouth. At a given plant the rate varies more or less from week to week, or a plant closes for a week or two and then operates at a moderate rate until it is necessary to close to await another accumulation.

Wages.

The Inland Steel Co. and the Steel & Tube Co. of America, both in the Chicago district, have reduced wages about 20 per cent. Some time ago some Eastern producers reduced wages, and there has also been a reduction in the Wheeling district. In the Pittsburgh and Valley districts there have been no wage reductions to speak of. Altogether, something like one-third of the independents, in point of capacity, have reduced wages. The Steel Corporation has done nothing.

Pig-Iron, Coke and Ore.

There is nothing new in pig-iron, inquiry being practically absent. The market is quotable at \$31.50 for foundry, \$32 for Bessemer and malleable and \$30 for basic f. o. b. Valley furnaces, freight to Pittsburgh being \$1.96.

Connellsville coke is very dull. The merchant producers have curtailed production quite well to the requirements, and very little surplus coke is being offered in the spot market. Demand for spot furnace coke is so light that some perfectly good coke has been sold for heating purposes, the price realized being usually \$5. Furnace coke on contract for the half-year is held at \$6. Foundry coke is bringing \$6.50 to \$7 for spot shipment. A little contracting has been done lately at \$6.75, but the well-known brands are held at higher prices.

Nothing has developed as to Lake Superior ore. Prices for the 1921 season are unlikely to be announced for some time. The trade looks for a reduction of about a dollar a ton, which would restore the price schedule of the 1919 season, when Mesabi non-Bessemer was \$5.55 per gross ton at Lake Erie dock.

Reduced Prices Bring Some New Business in Southern District, But Production Still Being Cut.

Birmingham, Ala., January 22.—[Special.]—Lower price has induced but little business, and pig-iron manufacturers in Alabama are still cutting down the production. Reports that prices of the product have been further reduced recently are not admitted, though in other centers it is to be heard that bookings have taken place at \$5 and more under the quotation that has been in effect for the past two weeks, \$35 per ton, No. 2 foundry. 1.75 to 2.25 per cent silicon. Selling agencies in larger centers have reported sales of Alabama iron at prices greatly under those

given out here, and inquiry will bring out information that "so far as we are concerned, no sales have been made at that figure, perhaps So and So sold the iron," and a complete circle has been made. The Alabama Company was the first to publicly announce the cut down to \$35 per ton, and within a week a number of small-lot orders had been received. J. W. Porter, general sales manager of the company, took a trip to the various centers and in large iron-consuming sections, and there has been some business accepted, delivery on which will continue for some time. The company has but one furnace in operation, and the selling of a few thousand tons of iron will mean steady operation. Another furnace of this company is in shape for operation, and will probably be placed in service during the coming month. The Sloss Sheffield Steel & Iron Co. has but two furnaces out of seven in blast, the Woodward Iron Co. one out of five, the Republic Iron & Steel Co. one out of three. The Tennessee Coal, Iron & Railroad Co. has the largest number of furnaces in blast here, while the small furnace of the Gulf States Steel Co. is in operation and furnishing all the iron needed by that company. The pig-iron production for the month will be under 155,000 tons. There is a hopeful view taken by some of the iron men of this section, and a prediction or two is heard that within 60 days there will be a turn for the better. A most significant happening of the past week was the change of mind as to the shutting down of the plant of the American Cast Iron Pipe Co., announcement being made that on the end of the week there would be a complete shutdown. This was followed with an announcement Friday that there would be no complete shutdown, and that the operations would continue indefinitely. It was taken to mean that some business had been received which warranted the continuation of operations at this plant. The cast-iron pipe lately has been feeling some little improvement in the business, with intimation that some healthy specifications would before long be placed in this district. Detroit is said to have placed an order for cast-iron pipe in this section. Approach of spring and more favorable weather will probably bring about a better demand for pipe, while building activities will also start up shortly, and that will mean various needs—radiators, sanitary pipe, etc. The change of mind on the part of the American Cast Iron Pipe Co. added interest to the expectations, and with resumption of numerous smaller industries throughout the district there is likely to be a better home consumption.

Surplus stock of pig-iron on furnace yards in this district is greater now than it has been for a few years. More than a month's make can be found in the total. The Shelby Iron Co., manufacturer of charcoal iron, has shut down its furnace at Shelby, but has enough stock on hand to fill any and all orders that are coming in. The car-wheel works are operating on limited schedule. Stove foundries are resuming operations, though not on full time. Some of the sanitary pipe plants in Anniston are starting up again, labor having accepted a cut in wages.

There has been no change recently in the steel-mill operations in this district. The large plants of the Steel Corporation subsidiaries are not slackening up in the least, and apparently there is considerable business still on the books. Shipments of steel rail and other shapes, export business, are of considerable tonnage, every railroad line, besides the Warrior River transportation facilities, getting some of this business. The Birmingham Steel Corporation, a project of the war time, fabricating at that time for the parent organization, the Mobile Shipbuilding Co., is still busy on structural steel for a large building in South Carolina, while some bridge work will also be done. Expectations are expressed at this plant that there will be need for steady operation for some time to come. Other steel mills, especially those fabricating steel, are looking forward to some new business which will require steady operations for some time.

The coal production in Alabama is still large; in fact, so far as steam coal is concerned, greater than the demand. Domestic coal prices have been lowered very little, but steam coal is off considerably compared to what they were several months ago. The leaders of the union mine workers claim that the strike is taking in men; in other words, men who have been working are now quitting and joining the union. A very large sum of money is being spent weekly by the union organization in the support of the strikers. The operators are dismissing guards and other help, and are not taking on any more labor.

The coke production is still being held down pending improvement in the market. Low prices, as in iron, has induced but little

new business. Actual needs are greatly off right now in the home territory, and when improvement does start in there will be no time lost in preparing to meet the demand. The quotations are also still low, \$9 being the maximum price heard on foundry coke and \$7 on the furnace product. Some disappointment is noted in the fact that the coke market has not shown signs of resumption of life. Production can be increased at least 20 per cent within 48 hours if need be.

The scrap iron and steel market is still very quiet, and the quotations have undergone another readjustment. A most bountiful stock of old material is on hand in this district, and the indications are there will be no time again when a scarcity of the various products in the scrap list will be noted. Consumers of heavy melting steel are not returning to the market yet except to have some stock delivered on old contracts. Dealers have very little to say and make no predictions as to when the change for the better will set in.

Quotations on pig-iron and steel scrap in the Birmingham district are as follows:

PIG-IRON.

No. 2 foundry, 1.55 to 2.25 per cent silicon, f. o. b. furnaces, \$30 to \$35; No. 1, foundry, 2.25 to 2.75 per cent silicon, \$31.25 to \$36.25; iron of 2.75 to 3.25 per cent silicon, \$32.25 to \$37.25; iron of 3.25 to 3.75 per cent silicon, \$33.25 to \$38.25; iron of 3.75 to 4.25 per cent silicon, \$34.25 to \$39.25; charcoal iron, f. o. b. furnaces, \$50.

OLD MATERIAL.

Old steel axles.....	\$20.00	to	\$21.00
Old iron axles.....	25.00	to	27.00
Old steel rails.....	15.00	to	16.00
Heavy melting steel.....	11.00	to	16.00
No. 1 R. R. wrought.....	15.00	to	16.00
No. 1 cast.....	20.00	to	21.00
Stove plate.....	17.50	to	18.50
Old car wheels.....	21.00	to	22.00
Old tramcar wheels.....	20.00	to	21.00
Machine-shop turnings.....	9.00	to	10.00
Cast-iron borings.....	9.00	to	10.00

Supplementing the above report, our Birmingham correspondent wires as follows:

"Pig-iron is now quoted at \$30, No. 2 foundry, in Southern district. The Alabama Company and other furnace companies have taken on a little tonnage at the new price. Charcoal iron quoted at \$45 per ton."

Coal and Coke Production.

The weekly coal report of the United States Geological Survey says that the production of soft coal continued to decline during the week ended January 15, and the total production for the period, including lignite, coal coked at the mine, mine fuel and sales to local trade, is estimated at 9,937,000 net tons, a decrease of 806,000 tons as compared with the week preceding. Production of anthracite continued to recover from the holiday depression, and the total production for the week is estimated at 1,895,000 net tons, an increase of 102,000 tons, or 5.7 per cent, as compared with the week before. The estimate output of beehive coke for the week was 260,000 net tons, a decrease of 10,000 tons as against the previous week.

The total output of by-product coke during 1920 was about 30,680,000 net tons, an increase of 22 per cent compared with 1919. More than 850 new ovens were put in use, and there were 580 more building at the end of the year. Total production of all coke for the year was 51,505,000 net tons, of which 40.4 per cent was beehive and the rest by-product coke.

Tidewater shipments of fuel fell off during the week ended January 16. There were 841,000 net tons of soft coal dumped over the piers. Shipments to New England were 131,000 net tons, a decrease of 34 per cent.

Would Abolish West Virginia Public Service Commission.

Charleston, W. Va., January 18—[Special.]—It is proposed in a bill introduced in the West Virginia Legislature by Delegate J. B. Hilleary of Upshur county to abolish the Public Service Commission of West Virginia.

RAILROADS

Government Owes Southern Roads Nearly \$43,000,000.

Washington, January 24.—[Special.]—The manner in which the total of \$261,757,874 paid the railroads of the United States under the guaranty clause of the Transportation Act is divided is made clear through the accompanying figures which have been furnished by the Bureau of Railway Economics:

District and class.	Amount certified.
Southern District:	
Class I roads.....	\$86,289,000.00
Class II and III roads.....	750,950.00
*S. and T. companies.....	31,000.00
Total.....	\$87,069,950.00
Eastern District:	
Class I roads.....	\$14,417,981.00
Class II and III roads.....	391,141.00
*S. and T. companies.....	495,000.00
Total.....	\$15,304,222.00
Western District:	
Class I roads.....	\$56,189,000.00
Class II and III roads.....	990,197.00
*S. and T. companies.....	2,525,500.00
Total.....	\$59,684,697.00
United States:	
Class I roads.....	\$236,875,681.00
Class II and III roads.....	2,137,991.00
*S. and T. companies.....	3,650,500.00
Total.....	\$242,664,172.00
Other than railways:	
American Railway Express.....	\$19,700,000.00
Grand total.....	\$261,757,874.00

*S. and T. are switching and terminal companies.

It will be noted that there has been paid to the Southern roads \$87,069,950, leaving a balance due under the guaranty, which for that section of the country was approximately \$80,000,000, in the neighborhood of \$43,000,000.

Plans to Merge Electric Railway Service.

Preliminary plans for the consolidation of service on the Annapolis Short Line Railway with the Washington, Baltimore & Annapolis Electric Railway by means of an operating agreement have been approved by the directors of the Maryland Electric Railways Co., which now operates the Short Line, a 25-mile direct route between Baltimore and Annapolis. The other road, with which it is planned to merge the Short Line, so far as its operation is concerned, has its main line running direct from Baltimore to Washington, with a cross-line 14 miles south of Baltimore running in one direction to Annapolis, 14 miles, and in other direction seven miles to a connection with the Baltimore & Ohio main line at Annapolis Junction. Both roads concerned in the deal are electrically operated. The stockholders of the companies are expected to approve the arrangement at meetings early in February.

It is stated that economies in operation will be accomplished. At present the Baltimore terminus of the Short Line is at Camden Station, and for the use of it \$60,000 a year are paid to the Baltimore & Ohio Railroad Co. It is planned that when the agreement is closed the Short Line cars will use the terminal of the Washington, Baltimore & Annapolis Electric Railway on Liberty street, in Baltimore, which can be readily reached by building a connection at the edge of the city, where the two roads run parallel and close to each other. Moreover, it is possible that there may be a reduction in frequency of local service. There has not, however, been any announcement along this line.

A Contemplated Extension.

Another step in the plans of the Florida East Coast Railway Co. to build a line from its terminal at Lake Okeechobee south-eastwardly 60 miles across to West Palm Beach has been taken by the purchase of some additional land at the latter point, but there does not seem to be any probability of early construction.

Railroad Financing.

Chesapeake & Ohio Railway Co., \$3,759,000, and Wheeling & Lake Erie Railway Co., \$500,000, are payments from the railroad revolving fund as announced last week.

Central of Georgia Railway Co. has been authorized by the Interstate Commerce Commission to pledge \$998,000 of general mortgage bonds as security for loans and bonds previously issued.

Wichita & Northwestern Railway Co. has applied for a Government loan of \$680,000 for 15 years to meet maturing indebtedness and for road improvements.

Kansas City, Mexico & Orient Railway, according to a report from Washington, has been loaned a total of \$2,500,000 by the Government, while the Fort Smith & Western Railroad has been loaned \$156,000.

Greene County Railroad of Georgia has applied for a Government loan of \$60,000 to meet maturing debts.

Wilmington, Brunswick & Southern Railroad has been paid \$90,000 from the railroad revolving fund, while the Fourche River Valley & Indian Territory Railroad has been paid \$73,332 from the same source.

Nashville, Chattanooga & St. Louis Railway has applied to the Interstate Commerce Commission for authority to issue and sell \$495,000 of its first consolidated mortgage 5 per cent bonds to reimburse the company treasury for expenditures and to supply working capital.

Marion & Rye Valley Railway has requested authority to guarantee a note to be issued to the United States by the Virginia Southern Railroad for a loan of \$38,000.

Street Railway Situation Improved.

A statement issued by P. H. Gadsden, president of the American Electric Railway Association, says that an official report on the condition of electric railways during the year 1920 indicates that they are steadily approaching a stable basis, this being the result of recognition on the part of the regulatory bodies that fair rates of return are essential for maintaining good service. Moreover, these bodies seem to realize that rehabilitation of lines will necessarily be slow, and that the present advanced rates of fare must be maintained for some time, even if falling costs should come, because a majority of the companies have strained their financial resources to the limit, or else created deficits, so that many badly needed improvements have been deferred for lack of funds. There are 12 cities paying 10 cents fare, 6 paying 8 cents, 174 paying 7 cents and 124 6 cents. There are also a few instances of 9 cents fare and some of 7 cents, 6 cents and 5 cents zone fares. As a result of raising fares there was a comparatively small number of electric railway receiverships during the year, only 16 being reported, as against 48 during 1919. It is also noted that in practically every community there is apparently a desire on the part of car riders to co-operate to make the lines self-sustaining.

New Express Company in the South.

Conduct of the express business over the lines of the Southern Railway System and the Mobile & Ohio Railroad will be taken over on March 1 by the lately organized Southeastern Express Co., an Alabama corporation formed by Charles A. Lyerly and others of Chattanooga, Tenn., Mr. Lyerly being temporarily chosen president, but it is announced by the Southern Railway that John B. Hockaday, who was formerly vice-president and general manager of the old Southern Express Co., will succeed him. The new company will have \$1,000,000 capital, owned by business men in the South, and Mr. Hockaday's associates in the operation of the business will be men who have spent their lives in express service in this section. Headquarters will be in Atlanta.

It is stated by officials of the Southern Railway that the decision to contract with the Southeastern Express Co. for handling express matter over the lines rests upon a conviction that the South should have an express company to handle business originating or terminating in the Southern States and also operated to give the shipping interests of the South an express service in keeping with their requirements and responsive to their wishes. The company will establish offices at all points on the Southern

Railway and the Mobile & Ohio Railroad, thus covering practically 10,000 miles of lines extending from Washington, Richmond, Norfolk and other points on the east to St. Louis, Memphis and New Orleans on the west, besides all points on the system between and south of the Potomac and the Ohio rivers and to the South Atlantic and Gulf coasts. It will also reach Baltimore by way of the steamers of the Chesapeake Steamship Co., which connect with the railroad lines.

President Hockaday, who has had more than 40 years' experience in the express business of the South, is a native of North Carolina. He was in Savannah for 10 years as superintendent of the Florida division of the Southern Express Co. and as general superintendent. He was also in Atlanta for 10 years, first as general manager of the Eastern district and then as vice-president and general manager. He is widely known.

B. & O. RAILROAD SHOPS SHUT DOWN.

Pennsylvania System Also Announces Another Cut in Expenses—Thousands Made Idle.

The Baltimore & Ohio Railroad Co. has announced a shutdown of its car and repair shops, beginning January 27, to continue for an indefinite period, but it is stated by President Daniel Willard that it is hoped the suspension of work will be only for a comparatively few days. From 7000 to 8000 men are affected. At the main shops, Mount Clare, Baltimore, about 300 men will be kept at work, this number being about 10 per cent of the total usually employed there, and it is expected that a similar proportion will also be retained at the other shops on the system.

The Pennsylvania Railroad Co. has just announced another reduction of 10 per cent to be effected in expenses all over its line, this following a previous reduction of the same percentage announced in November. The company, according to a statement issued by President Samuel Rea, has directed its several vice-presidents "to avoid, as far as possible, unnecessary disruption of the organizations or individual hardship." The hope is expressed that the reduction in business will continue for only a brief period, and the management also voices sincere regret "that uninterrupted employment cannot be assured to every faithful man on its payrolls." In explaining the need for the cut, it is stated that there are 58,000 idle freight cars on the system, or about 20 per cent of the number owned. Freight traffic has declined from 20 to 22 per cent since early in the autumn, and all available information "indicates that a further slowing down in the freight movement must be anticipated before recovery can reasonably be expected." It is asserted that the plan of the management is to accomplish the reduction in some cases by dropping men and in others by reducing the number of hours they will be employed. Overtime, which has been on a penalty basis, is to be eliminated.

The Norfolk & Western Railway, according to a report from Roanoke, Va., has laid off 500 men in its motive-power department, and it is said that 3500 men have been laid off along the system during the past four months.

The Missouri, Kansas & Texas Railway Co. is also preparing to carry into effect plans for reduction of expenses in its shop forces.

New Equipment, Etc.

Missouri Pacific Railroad's application for a loan of \$1,200,000 from the Government has been approved by the Interstate Commerce Commission, this to assist in paying for 25 freight and 15 switching locomotives, which will cost about \$2,400,000. The road will have to finance altogether about \$1,800,000, this amount including \$680,000 for 10 locomotives for passenger service.

Central of Georgia Railway has been authorized a loan of \$237,900 from the Government to aid in purchasing some new locomotives.

Cisco & Northwestern Railway, Cisco, Tex., has received 3 locomotives lately ordered.

Pittsburgh & West Virginia Railway is reported in the market for 3 switching locomotives of the 10-wheeled type, and the Richmond, Fredericksburg & Potomac Railroad for 1 switcher of the eight-wheeled type.

To Improve Street-Railway Conditions.

A program looking to improvement of the situation concerning street railways is advanced by the Chamber of Commerce of the United States as a result of a referendum vote of organizations composing its membership. Eight recommendations presented by the Committee on Public Utilities were approved with but few dissenting ballots.

The proposals and the votes were as follows:

1. Existing traction facilities should be conserved. For, 1689; against, none.
2. The attitude now taken toward street-railway problems should be based on the present and future needs of a community. For, 1677; against, none. This concerns necessary financing.
3. The attitude which is taken toward street-railway problems should contemplate private ownership and operation. For, 1657; against, 24.
4. Regulation should everywhere be instituted that will follow promptly changes in the situation of the companies rendering services of local transportation. For, 1666; against, 4. This aims to prevent delay in applying remedies for conditions.
5. Provision should be made against the consequences of unfair competition. For, 1653; against, 16.
6. All burdens unrelated to the service performed should be removed from street railways. For, 1460; against, 167.
7. Official responsibility should be definitely fixed for the application of regulation. For, 1682; against, 3.
8. Each company should seek to have available for the public at all times the facts as to the results of operation, and should have resident responsible executives wholly conversant with local requirements. For, 1683; against, 1.

Private ownership and operation was recommended by the committee with the declaration that "a canvass of every consideration that has been brought forward in support of public ownership and operation has resulted in the committee's finding in it no solution for present problems or means of meeting future requirements."

These members of the Public Utilities Committee signed the report: Lewis E. Pierson, chairman board of directors Irving National Bank, New York; Henry G. Bradlee, president Stone & Webster, Boston, Mass.; Arthur W. Brady, president Union Traction Co., Anderson, Ind.; F. B. De Berard, director of research Merchants' Association, New York; E. K. Hall, vice-president American Telephone & Telegraph Co., New York; Albert W. Harris, president Harris Trust and Savings Bank, Chicago, Ill.; Charles L. Harrison, president Sinking Fund Trustees, City of Cincinnati Bank Building, Cincinnati, O.; J. W. Lieb, vice-president New York Edison Company, New York; H. L. McCune of the firm of McCune, Caldwell & Downing, Kansas City, Mo.; P. N. Myers, president St. Paul Association of Public and Business Affairs, St. Paul, Minn.; John W. Van Allen of the firm of Wilcox & Van Allen, Buffalo, N. Y.

Each Freight Car Carrying More.

The Bureau of Railway Economics reports that the railroads of the country established during November a new record in the average load carried by each loaded freight car, the average for the month being 30½ tons, or two-fifths of a ton greater than the previous record and half a ton higher than in the preceding month. This, notwithstanding there was a falling off in business, indicates there is no let-up in efficiency. In July and August, 1918, an average of 30.1 tons was reached, but it was not until last September that the 30-ton mark again was attained. An increase of one ton in the average load per freight car is equivalent to the addition of approximately 60,000 cars.

Wireless Telegraph for Railroad Business.

Wireless outfits for supplementary telegraph service will be installed at several main points on its system by the Louisville & Nashville Railroad Co., according to a report from Louisville, Ky., quoting R. R. Hobbs, superintendent of the telegraph department of the company. The wireless is to be used for general business messages of the system, but not for train operation, as that would be confusing. Outfits are to be installed at Louisville, New Orleans, Mobile and Pensacola, it is stated, but only to supplement the regular wire service of the company.

LUMBER AND BUILDING MATERIALS

Southern Mills Report Best Week for New Business in Past Nine Months.

New Orleans, La., January 22—[Special.]—Reports of the Southern Pine Association on the activities of 136 mills for the week ending January 14 show that orders received, amounting to 3163 cars, or 68,690,871 feet, represented the largest amount of business reported in any week during the past nine months, the previous high mark being in April, 1920. At that time building operations for the year were going forward at great rate, and dealers were getting in stocks for spring and summer building operations. The increase in "orders on hand" during the week of January 14 amounted to 10.24 per cent, and the orders were 40.31 per cent above production and 44.69 per cent above shipments for the week, which amounted to 2186 cars.

Stocks of lumber at the Southern pine mills were practically stationary during the month of December, and are now slightly about normal, but far below the stocks carried by the same mills during 1915 and 1916.

Production at the various mills is still reaching new low levels. Last week's output was the lowest of any similar period during the past six years, and was 48 per cent below normal. Of 78 mills reporting operating time, 22 operated at full time, 20 were closed down entirely and the others operated on various degrees of reduced time.

Anticipate Increased Lumber Prices.

Regarding general business conditions, J. F. Worsley, Ltd., dealers in railway equipment, Peters Building, Atlanta, Ga., has forwarded to its customers a letter, part of which is as follows:

"We personally look for improved business, and that business will go on as usual. In fact, judging from our inquiries and orders received so far this month, the lumber industry in general seems optimistic, and we ourselves have decided to quit "whining" and go to work and work harder than ever before.

"Take building activities in Atlanta, for instance. Just as soon as the old year passed, immediate construction was started on three large buildings in the heart of the city. There is not a town anywhere that does not face a housing shortage. Today in Atlanta there is hardly a house to be had anywhere. Lumber is selling below the cost of production, and with the demand that is obliged to come for this product, we are of the opinion that the lowest price level for lumber and lumber products has been reached, and that instead of further reductions, advances will be made within the next 60 days in the price of lumber of all grades."

Meridian Building Construction Equals \$561,045.

Meridian, Miss., January 22—[Special.]—Building activities in this city increased at a good rate during the past 12 months. According to figures just made public, \$561,045 was the cost of 1920 improvements, including repairs and extensions to established buildings and erection of new structures. In 1919 the estimated cost of such work was \$427,670.

The upward trend here was made despite high cost of labor and materials, and it is now felt that 1921 will witness one of the biggest advances in building construction in many years, due to decrease in labor and materials costs. It is expected that building projects in volume will be under way within the next few months.

Bristol Construction Amounts to \$250,000.

Bristol, Va., January 22—[Special.]—Building permits involving a total expenditure of about \$250,000 were issued here during the past year, according to the report of the Commissioner of Revenue. In addition to construction, a number of new structures, including business houses, repairs and improvements, were made to many stores and dwellings.

It is predicted that this amount will be doubled in 1921. Many plans are being prepared for dwellings and business houses, construction work on which will start in the early spring.

Yellow Pine Shipments More Than 500,000,000 Feet in Nine Months.

Washington, January 24—[Special.]—More than one-quarter of all lumber exports from the United States now go to Latin American markets, with Canada and Europe taking the majority of the remainder, according to the Bureau of Foreign and Domestic Commerce. In 1919 the Latin American countries, all countries south of the United States, including colonial possessions in the West Indies and in South and Central America, received 28 per cent of the total lumber exports from the United States. A steady increase has marked this trade since the armistice, and statistics for the first nine months of 1920 indicate that the year will show the largest lumber shipments since 1913 and the highest values on record. These exports cover not only timber and boards, but partly manufactured articles, such as doors, shooks and house furnishings.

The largest item in lumber shipment in the first nine months of 1920 was long-leaf yellow pine in boards and planks amounting to 501,700,000 feet, valued at \$29,754,000. Cuba alone took 37 per cent. Fir boards were also well represented by 369,200,000 feet, valued at \$14,607,568. Fir is particularly appreciated on the west coast of South America, Peru and Chile taking the largest shipments. Oak boards find their best market in Argentina and Uruguay.

Reports of Operations of Southern Pine Association Mills for Week.

New Orleans, La., January 22—[Special.]—For the week ending January 14 reports of the Southern Pine Association covering the activities of 136 lumber mills is as follows:

	Cars.	Feet.
Orders on hand beginning of week.....	9,543	297,245,331
Orders received during week.....	3,163	68,690,871
Total	12,706	375,936,202
Shipments during week.....	2,186	47,473,362
Orders on hand end of week	10,520	228,462,840

During the week orders received by 136 mills amounted to 68,690,871 feet, shipments to 47,473,362 feet, production to 48,956,331 feet, while the normal production of these mills is 94,090,900.

Shipments were 3.03 per cent below production for the week. Orders were 40.31 per cent above production and 44.69 per cent above shipments for the week.

The actual production was 47.97 per cent below normal, and shipments were 49.55 per cent below normal production. Orders were 27 per cent below normal production, and the increase in "orders on hand" for the week amounted to 10.24 per cent.

Doubling Capacity of Brick Plant.

Bristol, Tenn., January 24—[Special.]—The Southern Brick Co.'s plant here is being extended and improved to provide a daily capacity of 40,000 bricks. The work is done by the company's own forces. The present plant has an output of 20,000 shale clay bricks daily, and this output will be doubled by erection of new kilns and the installation of new and modern machinery. Included among the equipment to be installed is a dry pan, an induction drykiln fan, 30 brick cars, one and two-yard end dump cars, two two-yard end or side dump cars. M. H. Copenhagen of Bristol, Tenn., is president of the company, and Charles T. Kilgore of Bristol, Va., is vice-president. W. A. Mahan is the plant manager.

Company Ordered to Rehabilitate Line.

The Potomac, Fredericksburg & Piedmont Railroad Co., operating a narrow-gauge line 38 miles long from Fredericksburg to Orange, Va., has been ordered by the Virginia State Corporation Commission to make repairs to its property and to add equipment. It is said that many new ties and much new rail are needed, and that there are not enough locomotives and cars to handle the freight offered.

TEXTILE

Several Mills Resume—A Number of New Orders Cause Speeding Up of Production.

Officials of Knoxville (Tenn.) mills predict a big improvement in the textile markets with the opening of a number of additional mills and the speeding up in operation of others. Probably 1000 more persons are at work in Knoxville this week than there were a week ago. Some of the mills still closed are expected to reopen shortly. The Knoxville Cotton Mills resume work after being closed for one month, and 300 persons are now engaged. Likewise, the Spinning Co. plant opened with a force of 250 employees. The knitting mills are operating at about 80 per cent of capacity. Reports say that the Brookside Mills, which did not close, but which kept operating at about 30 hours a week instead of 55 hours, are turning out about 65 per cent as much work as when the employees were working full time. About 1800 workers are now engaged.

Officials and mill operators believe that conditions will continue to improve until business is near normal. Many large stores and brokers throughout the country are practically "sold out," and with the coming of spring business a general resumption of mill activities is expected. More inquiries have been received in the past two weeks than for some time. Hosiery mills feel that the market is improving and demand increasing.

Full-time operations of the Durham Hosiery Mills, Inc., plants begin January 24, according to an announcement made at Durham on January 18, following a session of the employees and employers' congress. A further reduction in wage scale of 15 per cent was adopted. The resumption of operations was made possible through a contract for 1,600,000 pairs of hose, announced in the MANUFACTURERS RECORD last week.

High Point, N. C., mills have begun operations, after being idle for several weeks, with prospects of furnishing employment to a large number of persons for some months. The Commonwealth Hosiery plant is operating for the first time in months, and it is believed that 75 per cent of the original force will be engaged shortly. The High Point Overall plant will operate at capacity as a result of large orders received during the past few weeks.

The Cannon Mills at York, S. C., which have been running on a three-day schedule for some time, will now operate on a four-day basis. A readjustment of wage and bonus scales has been announced.

Brookside Mills' Addition Making Good Progress.

Construction is proceeding upon the new addition being erected by the Brookside Mills of Knoxville, Tenn. An announcement states that the work is about 65 per cent completed. The building will be one story and basement, the basement to be used for store-room and the story above ground equipped with 600 looms for weaving cotton cloth. As previously stated in these columns, the structure will be of concrete and brick, 222x195x143 feet. The roof is of the saw-tooth type, and contains large windows and numerous skylights to admit as much light as possible into the weaving-room.

It is understood that this building will cost \$400,000, and is estimated to require 320,000 bricks, 6000 barrels of cement and 14,000 square feet of glass, the floor capacity to be 500 pounds to the square foot. F. P. Sheldon & Son of Providence, R. I., are the architects and engineers in charge, and the Aberthaw Construction Co. of Atlanta and Boston is the contractor for the building.

Plans Branch Silk Industry.

Dispatches from Thibodaux, La., state that Dr. V. K. Osgnigan, G. S. McCutcheon and A. R. Fairbairn, representing the Osgnigan Silk Worm Industry Corporation of New Orleans, are conferring with the Thibodaux-Lafourche Association of Commerce relative to the establishment of a plant at Thibodaux for the propagation of silkworms and the production of silk. It is proposed to acquire an 80-acre site and plant from 150,000 to 300,000 mulberry trees to form the nucleus of the contemplated new industry.

Number of Idle Spindles in Piedmont-Carolina Cotton Mill Districts Rapidly Decreasing.

With the resuming of operations by the six cotton-yarn mills at Cherryville and the announcement that the new Rhyne-Houser Mill there will be open soon on full time, the majority of the spinning mills of the Gastonia (N. C.) district are now in operation. The leading textile men are all optimistic, and believe there will soon be no idle spindles among the more than a million in this county.

At the annual meeting of the stockholders of the Shuford Mills of Gastonia, held this week, W. T. Rankin was elected to succeed the late Col. C. B. Armstrong as president; C. C. Armstrong, vice-president, and George E. Marvin, secretary and treasurer.

In the big Piedmont Carolina textile centers the wheels are either turning on full time or getting ready to resume capacity operations in the next week or two. Mill after mill and chain after chain already have joined the full-time chorus, until now there is hardly a textile center in which the usual activity has not been resumed. Charlotte, Greenville, Spartanburg, Greensboro, Durham and Raleigh, in addition to Gastonia, report practically full-time operation of the mills. All of the mills are getting some orders and a great many inquiries, and they are putting these orders and inquiries and their faith in the future together and are going ahead.

The majority of the mills have adjusted wages to meet the new conditions. Some few mills are running on short time and paying higher wages, but these are expected to change to full time at lower wages soon.

Planning Village and Mill Improvements.

The Consolidated Textile Corporation, headquarters at Greensboro, N. C., has retained E. S. Draper, landscape architect and city planner, 11 East 5th street, Charlotte, N. C., to make complete report and outline for improvements of a number of their Southern mills, including Henderson Division at Henderson, Ky.; Union Division at Lafayette, Ga.; Lynchburg Division at Lynchburg, Va.; Pilot Division at Raleigh, N. C., and Ella Division at Shelby, N. C. It is encouraging to know that one of the largest textile corporations in the country is having complete improvement plans made so that they will be in position to go right ahead with village improvement work when they feel that conditions justify their going ahead.

Textile Mill Notes.

The Pulaski Knitting Mills, Inc., operating hosiery mills at Pulaski and Radford, Va., will install hosiery shaping and pressing machinery to increase the capacity of its finishing department and facilitate handling the output of its plants in both cities. The company manufactures cotton seamless half-hose. New York offices are at 87 Leonard street.

Announcement has been made that the Laurel Bluff Cotton Mills of Mt. Airy, N. C., manufacturer of cotton yarns, has increased capitalization from \$50,000 to \$125,000. It is further stated that the mills will now resume operations on full 24-hour time. The company is controlled by Robert A. Love of Gastonia, N. C., and associates.

The six-story mill building of the Mt. Vernon-Woodberry Mills, Baltimore, Md. will be remodeled at a cost of \$6000. Work has begun. C. A. Hammet of Baltimore being the general contractor. The company manufactures cotton duck.

Capitalized at \$500,000, the Southern Textile Co. has been incorporated to manufacture silk at Covington, Va. H. Ruegg of Weehawken, N. J., is president, and W. C. Faulkner of Richmond, Va., secretary.

The manufacture of hosiery at Somerset, Ky., is proposed by the Beattie Hosiery Co., incorporated with \$20,000 capital by Alex. Beattie, James Brown, Jr., and Frederick Schlosser, all of Philadelphia, Pa.

The manufacture of hosiery at Hickory, N. C., is contemplated by P. L. Cloninger, who is preparing to organize a company for this purpose.

Novel Equipment in Large Cafeteria.

At the plant of the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., there was recently put in operation for the use and convenience of employes a cafeteria that is said to be "the largest in the world," and a unique feature of the service is displayed in the accompanying illustration. Everything has been arranged with a view to obtaining a maximum of efficiency, and it is said that 3000 people can enter the building, eat lunch and be out again in 22 minutes.

Necessarily in a place of this size delay and confusion must be prevented. Employes cannot be permitted to idle before the service counters while selecting food. To prevent idling, there is before each service counter a continuous belt. As the employe enters the line he takes a tray with his forks, spoons, knives, etc., and puts it on the belt, where it moves along and he follows it. First he gets bread and butter, then meat or fish, and vegetables as desired, already laid on plates; next dessert and beverages, after which the tray slips off the belt at the end of the counter onto a rest, whence he takes it to the table where he eats. This arrangement permits passing 34 persons a minute by each service counter, there being eight counters altogether. The speed of the belt is such as to suit the average man.

The cafeteria building is located on Braddock avenue, opposite the main group of the company's buildings. It is 300 feet long, 100 feet deep and has three stories and basement. Construction is of brick and concrete. The first and second floors are wholly devoted to the cafeteria service. The first floor has one cafeteria for men, another for women. The entire second floor is for both men and women. The third floor is the East Pittsburgh Club (which is the officers' dining-room), the kitchen and an auditorium and lecture-room. The basement is used for refrigerating

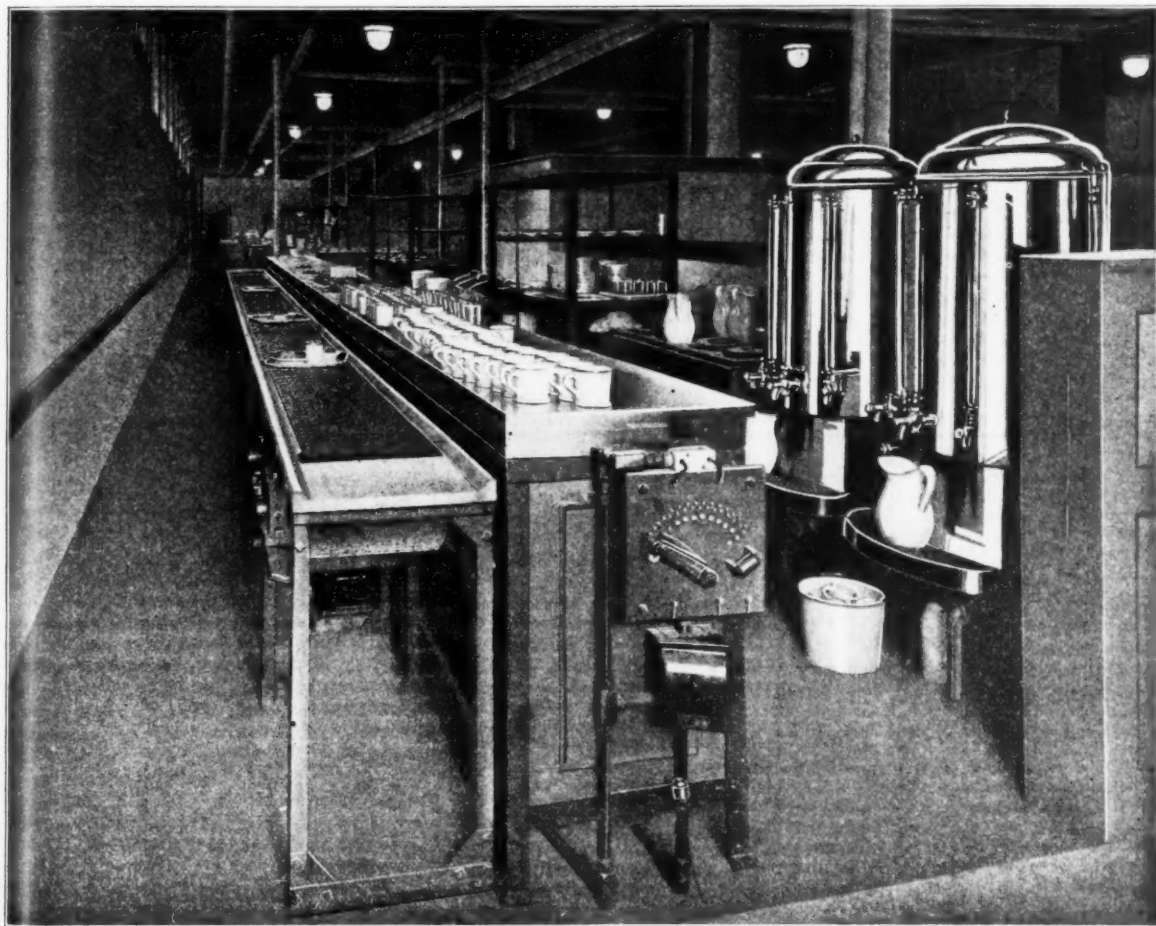
machinery and as a laundry. Sanitary bubbling fountains are distributed through the building.

The magnitude of the dining-room on the second floor is impressive. It is 300 feet long, and about 1500 people can dine there or lunch there simultaneously. All of the tables have white enamel tops, and the seats are revolving stools, as are the seats in the men's cafeteria on the first floor. The downstairs women's cafeteria has chairs. The second floor is reached by means of a ramp in the center of the building, and there is an exit ramp at each end, and there are no elevators excepting those which carry food to and from the kitchen, dishes, etc. These are automatic. In the officers' dining-room, on the third floor, there are tables with glass tops, and instead of stools there are chairs. The seating capacity is 500, and there are waiters. The kitchen is equipped with numerous labor-saving devices. The ranges burn gas, but they can use soft coal if need be. There are 12 coffee urns in the building, each of 30 gallons capacity. The two dish-washing machines each have a capacity of 1400 dishes per hour.

A notable feature of the building is the large assembly-room on the third floor. It can seat 1000 people, and there is a big stage. It is used for both entertainment and instruction. There is a motor driven moving-picture machine. The entertainments have athletic features; the employes, for instance, one evening having a boxing match exhibition.

Throughout the cafeteria building the prices are moderate and the service is open to anyone, although there is no solicitation of public patronage.

The contract for the entire equipment was given to Albert Pick & Co., 208-220 W. Randolph street, Chicago, Ill. The moving-belt service was proposed by their experts, and constituted a radical departure. The Westinghouse Company consented to its installation at two service counters at first, and afterwards, warranted by their success with the belts, it was installed at the others.



MOVING BELT AT SERVICE COUNTER IN LARGE CAFETERIA.

Construction Department

EXPLANATORY.

The MANUFACTURERS RECORD seeks to verify and obtain additional information regarding all enterprises reported in its Construction Department, by direct daily correspondence. Further facts of news value are published later from telegraph, mail and representatives' reports. We appreciate having our attention called to errors that may occur.

DAILY BULLETIN.

The Daily Bulletin of the MANUFACTURERS RECORD is published every business day in order to give the earliest possible news about new industrial, commercial, building, railroad and financial enterprises organized in the South and Southwest. It is invaluable to manufacturers, contractors, engineers and all others who want to get in touch at the earliest moment with new undertakings, or the enlargement of established enterprises. The subscription price is \$20.00 per year.

Bridges, Culverts and Viaducts.

Fla., Jacksonville.—City Comm., will construct Lee St. viaduct; 1300 ft. long, 60 ft. wide; \$200,000; Chas. E. Hillger, Contr.; F. M. Edwards, City Engr.; supersedes recent item. (See Machinery Wanted—Excavator; Cars; Rails.)

Fla., Tampa.—Geo. S. Gandy will build bridge across Old Tampa Bay; 15,000-ft. open bridge, 12,000-ft. cut and fill, latter 60 ft. wide, while bridge will be 84 ft. in clear; sidewalks and bridge to be constructed of concrete; \$2,000,000; will invite bids. (Latest noted.)

Ga., Cedartown.—Polk County Commrs. Roads and Revenues, Whit. K. Russell, Chmn., will build bridges on Federal-aid Project No. 165; \$11,728.56; Stanley Singer Co., Contr., La Fayette, Ala.; A. A. Simonton, Div. Engr., Cedartown.

La., Alexandria.—Rapides Parish Police Jury, J. F. Ball, Prest., will build bridges and culverts on portion River road extending from Powell's lane to Boyce, 10½ mi.; also build culverts on 9 mi. Glenmora-Westport highway; bids until Feb. 8; Ira W. Sylvester, Parish Engr. (See Machinery Wanted—Bridge Construction.)

N. C., Ashboro.—North Carolina State Highway Comsn., Div. Office, Greensboro, N. C., will build bridges and culverts on Project 112 in Caswell County; bids opened Jan. 25; W. S. Fallis, State Highway Engr., Raleigh, N. C. (See Machinery Wanted—Bridge Construction.)

Okla., Huskey.—Choctaw County Commrs. will build steel bridge; capacity 9 tons; contract to Kansas City firm.

S. C., Eastover.—State Highway Dept., Columbia, S. C., plans bridge over Wateree River.

S. C., Sand Bar Ferry.—South Carolina State Highway Dept., Columbia, S. C., will build bridge across Savannah River; bids until Feb. 18. Supersedes recent item. (See Machinery Wanted—Bridge Construction.)

Tex., Corpus Christi.—Nueces County Commissioners, H. R. Sutherland, County Judge, will construct 4 timber trestle bridges on Bluntzer-Banquette Rd.; \$400; county will furnish materials; J. H. Johnson, Contr., Houston, Tex.; O. N. Powell, County Engr., Corpus Christi, Tex.

Tex., Galveston.—Galveston County Commissioners contemplates \$100,000 bond issue for paving causeway.

Tex., Livingston.—Polk County Commrs., E. T. Murphy, County Judge, will build reinforced concrete bridges on 22 mi. route State way No. 35; \$54,966.22; contract awarded to Highway No. 35; \$54,966.22; contract awarded to county subject to approval of State Highway Dept.; W. C. Youngs, County Engr. (Latest noted inviting bids.)

Tex., Wheeler County Commrs. will build

bridge over Red River; cost \$100,000; voted \$58,000 bonds.

Va., Norfolk.—City, Walter H. Taylor, 3d Director Public Works, will build bridge across Tanners Creek at 26th St.; low bidder C. B. Cross, at \$43,850. (Latest noted inviting bids.)

W. Va., Kingwood.—Cheat River & Muddy Creek, R. R., R. S. La Rue, Prest., will build 4 or 5 bridges.

Canning and Packing Plants.

Ark., Lincoln.—Lincoln Canning Co. will probably rebuild plant burned at loss of \$35,000 to \$40,000.

Md., Baltimore.—Mrs. Wm. E. Kidd, 1428 John St., capital \$20,000, inceptd. by S. Naoml and Wm. E. Kidd, Ralph B. Reynolds.

N. C., Charlotte.—Thomasboro Canning Co. organized with J. E. Thomas, Prest.-Mgr.; C. C. Thomas, Secy.; all R. F. D. No. 5, Thomasboro, N. C.; will construct wooden building, costing \$7000; install 2200 machinery; daily output 2000 cans vegetables; bids for building and machinery until March 1. Latest noted inceptd. (See Machinery Wanted—Boilers; Canning Equipment.)

Clayworking Plants.

Tenn., Bristol.—Bricks.—Southern Brick Plant, W. A. Mahan, Mgr., Mahoney Bldg., will improve plant; increase daily capacity from 20,000 to 40,000 shale bricks; will install dry pan and induction drykiln fan. Latest noted improve plant. (See Machinery Wanted—Fan; Pan; Cars.)

Tex., Houston.—Tiles.—International Tile Co. will increase capital from \$1000 to \$10,000.

W. Va., Huntington.—Bricks, Tiles, etc.—Huntington Tile & Brick Co.; capital \$150,000, inceptd. by T. M. Davidson, J. J. West, C. A. Howard.

Coal Mines and Coke Ovens.

Ala., Birmingham.—Rogers-Talty Coal Co., capital \$100,000, inceptd. with C. P. Rogers, Jr., Prest., Morris, Ala.; G. F. Talty, V.-P.; W. A. Rogers, Treas.

Ala., Oneonta, R. F. D. 4.—Crestview Mining Co., W. H. Young, Prest., will develop 1500 acres coal land with output of 500 tons; W. G. Alexander, Const. Engr., 1515 S. 13th St., Birmingham, Ala.

Ala., Saragossa.—Saragossa Mining Co. will develop coal land.

Ky., Leander.—Minors Elkhorn Coal Co., Pikesville, Ky. (latest noted inceptd., capital \$30,000), organized with J. H. Adkins, Prest.-Mgr.; W. R. Taylor, V.-P.; J. R. Mullins, Treas.; has 700 acres coal land. (See Machinery Wanted—Mining Machinery; Building Materials; Rails.)

Ky., Harlan.—Cornett-Lewis Coal Co. increased capital from \$300,000 to \$500,000.

Ky., Hulen.—O. L. Shor Coal Co., capital \$25,000, inceptd. by I. L. Shor, Josh Howard, M. G. Colson.

Ky., Williamsburg.—Garnett-Jellico Coal Co., capital \$25,000, inceptd. by J. T. and S. P. Estes, A. M. Steely.

Md., Baltimore.—Century Coal Co., John K. Shaw, Prest., Maryland Life Insurance Co. Bldg., increased capital from \$1,150,000 to \$2,000,000.

Okla., Buck.—Buck Coal & Mining Co., capital \$10,000, inceptd. by J. S. Williams, A. B. Rittenvesey, both Harshorne, Okla.

Va., Raven.—Red Ash Fuel Sales Corp., capital \$50,000, inceptd. with R. W. Riddle, Prest.; A. W. Horton, Secy.

Va., Raven.—Red Ash Fuel Sales Corp., capital \$50,000, inceptd. with R. W. Riddle, Prest.; A. W. Horton, Secy.; develop 1200 acres; daily output of 2 mines to be 400 tons; install mining mch. (See Machinery Wanted—Mining Machinery.)

W. Va., Beckley.—Beckley Fire Creek Smokeless Coal Co., capital \$500,000, inceptd. by Ashton File, W. W. Goldsmith, both Beckley; Prince E. Lilly, Lillybrook, W. Va.

W. Va., Bonear.—West Virginia Eagle Coal Co., J. R. Charlton, Treas.-Mgr., will develop 1300 acres coal land; daily output 500 tons. (See Machinery Wanted—Mining Machinery.)

W. Va., Cassville.—Barbara Mining Co., capital \$250,000, inceptd. by Charles E. Craig, Morgantown, W. Va.; W. W. Woodruff, A. M. Davis, both Pittsburgh, Pa.

W. Va., Charleston.—Freer Coal Co., capital \$50,000, inceptd. by Frederick A. and George F. Freer, both Nelsonville, O.; George G. Bauer, Buchtel, O.

W. Va., Charleston.—Eight Mile Coal Co., capital \$25,000, inceptd. by J. R. Cunningham, E. H. Jones, C. E. Parks.

W. Va., Clarksburg.—Cleveland Freeport Coal Co., capital \$100,000, inceptd. by C. Schmitz, Gustav Lehnchen, Fred M. Vick, all Cleveland, O.

W. Va., Charleston.—Standard Tide & Coal Sales Co., capital \$50,000, inceptd. by A. V. Evans, George H. Endler, H. A. Williams.

W. Va., Fairmont.—Vassar Coal Co., capital \$75,000, inceptd. by Bruce H. Fannus, Austin T. Maunz, John Russo, Jr.

W. Va., Fairmont.—New England Fuel & Transportation Co., Boston, Mass., has plans to open coal mines; contemplated daily capacity 5000 tons with equipment to augment output to 8000 tons per hour.

W. Va., Grafton.—Bush-Bar Coal Co., capital \$25,000, inceptd. by W. C. Dunnington, E. L. Winchell, W. L. Camden, all Mountain Lake Park, Md.

W. Va., Huntington.—Coal Mountain Mining Co., capital \$200,000, inceptd. by Chris. McTaggart, J. E. Gibbs, S. S. McNeer.

W. Va., Morgantown.—Fort Grand Coal Co., capital \$80,000, inceptd. by W. F. Hughes, Morgantown; W. D. Reed, S. McIntire, both Fairmont, W. Va.

W. Va., Naugatuck.—Shumate Coal Mining Co., capital \$50,000, inceptd. by Charles Turney, Walter Lyle, Elizabeth Shumate.

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

W. Va., Richwood.—Elk Smokeless Coal Co. organized with V. H. O'Dell, Prest.; J. T. Holden, V.-P.; Ira Davis, Secy.; J. D. Rake, Treas.; has 1100 acres coal land; will develop later. (Lately noted inceptd., capital \$50,000.)

W. Va., Welch.—Gem Pocahontas Coal Co., James P. Flanagan, Prest., increased capital from \$25,000 to \$100,000.

W. Va., Wheeling.—McMillan Coal Co. inceptd. by W. W. McMillan, George A. Blackford, both Wheeling; William Rennie, Shady-side, O.

Concrete and Cement Plants.

Md., Baltimore.—Concrete, etc.—Maryland Concrete Corp., 700 Equitable Bldg., capital \$50,000, inceptd. by Jacob Gouline, Louis Marcus, Edridge Hood Young.

Mo., Jefferson City.—Cement.—John C. Dyott, interested in establishing cement plant.

Cotton Compresses and Gins.

Tex., Mercedes.—Mercedes Gin Co. will improve ginners; cost \$50,000.

Tex., San Benito.—Valley Gin Co. will improve plants in various locations; costing \$55,000 each.

Tex., Weslaco.—Weslaco Gin Co., capital \$700, inceptd. by M. J. and E. D. Clark, W. S. Puckett.

Cottonseed-Oil Mills.

S. C., Hartsville.—Hartsville Oil Mill will increase capital from \$75,000 to \$200,000.

Drainage Systems.

Ala., Fayette.—Fayette-Lamar Comsn., W. M. Sedduth, Chrmn., contemplates organizing drainage district to drain 22,000 acres land.

Electric Plants.

Ala., Florence.—U. S. Government let contract to S. Morgan Smith Co., York, Pa., to construct house turbine; private plans.

D. C., Washington.—Navy Dept., Bureau of Yards and Docks, let contract to G. B. Mullin & Co., Contr., 3303 11th St. N. W., to construct electric duct system; paving, draining and build retaining wall.

Fla., Tampa.—Tampa Electric Co. will improve street-lighting system; install 50 100 C. P. lights.

Ky., Whitesburg.—W. C. Daniel, Sr., & Son, will construct 1-story brick power plant, costing \$3000; construct ½ mi. transmission line, costing \$2000; develop 50 H. P.; W. C. Daniel, Sr., Engr. (Lately noted.)

Md., Baltimore.—Ce-Re-O Mfg. Co., 131 W. Pratt St., capital \$25,000, inceptd. by Frederick E. Saumenig, John B. Meiser, Chester F. Merrow.

Mo., Warrensburg.—City plans installing light plant; Frank L. Wilcox, Conslt. Engr., St. Louis, Mo.

Miss., Pascagoula.—City will vote Feb. 14 to purchase light and water plants. Address The Mayor.

N. C., Dunn.—Town contemplates rebuilding power, light and water plant; cost \$100,000. Address The Mayor.

N. C., Newton.—City will install light and power and water system; issued \$14,000 bonds. Address The Mayor.

Okla., Tishomingo.—City will extend transmission lines, 9 mi., from Tishomingo to Milburn. Address The Mayor.

Tex., Dallas.—Winchester-Texas Oil & Refining Co., Wm. L. MacKay, Production Mgr., will install generating plant in Sipe Springs field.

Tex., Fort Worth.—Transit Grain & Commission Co., capital \$50,000, inceptd. by Leo Potishmar, Young de Witte, Frank King.

Tex., Harlingen.—City will install light, water and sewer systems; voted \$50,000 bonds. Address The Mayor.

Va., Radford.—Norfolk and Western Ry., J. E. Crawford, Engr., N. & W. Bldg., Roanoke, Va., let contract to J. P. Pettyjohn & Co., 212 Eighth St., Lynchburg, Va., to construct 1-story boiler house; private plans.

W. Va., Wheeling.—Sisters of Good Shepard, Edgington Lane, will alter power plant, and improve laundry, coal bunkers and pergola; Sidney F. Heckart, Archt., Bessemer Bldg., Pittsburgh, Pa.

Fertilizer Factories.

Ga., Savannah.—Middleton & Peterson, capital \$30,000, inceptd. by M. L. Middleton, Savannah; W. M. Peterson, Augusta, Ga.

Md., Curtis Bay.—Rasin Monumental Co., Howard A. Vernay, Secy. Treas., 402 Natl. Marine Bank Bldg., Baltimore, let contract to Huggar Bros., Montgomery, Ala., to construct plant addition.

Flour, Feed and Meal Mills.

Okla., Imo (P. O. Enid).—Imo Terminal Elevator Co. let contract to construct 100,000-bu. elevator.

Tex., San Antonio.—Liberty Mills will construct mill; Baxter Engineering and Appraisal Co., Archt. Engr., Elliott Sq., Buffalo, N. Y.; Archt and Owner invites.

Foundry and Machine Plants.

Ala., Birmingham.—Frogs and Switches.—Kilby Frog & Switch Co. increased capital from \$150,000 to \$300,000.

Fla., Petersburg.—Book Machinery.—Crawley Book Machinery Co., capital \$40,000, inceptd. by Arthur, Jr., and Louise Crawley, both Petersburg; Archie McRae, Newport, Ky.

Ga., Savannah.—Boilers, etc.—Savannah Machine & Boiler Works, capital \$5500; inceptd. by James K. Calvitt, J. P. Dillon, M. V. Williamson.

Md., Baltimore.—Motor Radiators.—Curran Baltimore Motor Radiator Co., 1702 Light St., capital \$100,000, inceptd. by F. Howard Kidd, Walter V. Harrison, Philip S. Ball.

Mo., St. Louis.—Oil Pumps and Tanks.—Gilbert & Barker, Springfield, Mass., acquired site on McKissock Ave.; will establish plant, moving it from Springfield.

N. C., Greensboro.—Machine Shop.—Robertson, Strader & Co. will probably rebuild machine shop burned at loss of \$30,000.

Okla., Ardmore.—Tank.—Service Tank Co., capital \$10,000, inceptd. by Frank and E. M. McPhail, Ardmore; L. A. Wirtaker, Wirt, Okla.

Okla., Shawnee.—Tank.—Bradford Tank Co. increased capital from \$50,000 to \$100,000.

Tenn., Nashville.—Stoves.—M. E. Brown, Huntington, W. Va., reported to erect plant to mfr. stoves.

Tex., Dallas.—Oil Well Tools.—Mack Mfg. Co., main office Houston, Tex., have completed plans for erection of \$1,000,000 branch plant; to mfr. cable oil-well tools. (Previously noted to establish branch plant.)

Va., Clifton Forge.—Machinery, etc.—White-side Supply & Engineering Corp., capital \$25,000, inceptd. with J. W. Whiteside, Prest.

Va., Lynchburg.—Pipes, etc.—Glamorgan Pipe & Foundry Co. will erect plant addition.

W. Va., Huntington.—Rails, etc.—H. T. Lambert Co., capital \$200,000, inceptd. by H. T. Lambert, W. H. Tidman, E. A. Thomas.

W. Va., Huntington.—Machine Shop.—Brown

Flint Range Co., capital \$250,000, inceptd. by M. E. Brown, J. G. Miller, Chas. S. Porter.

W. Va., Wheeling.—Steel Products.—Wheeling Steel Product Co., capital \$1,000,000, organized with W. H. Abbott, Prest.; H. D. Westfall, V.-P.

Gas and Oil Enterprises.

Ala., Albany.—Albany-Decatur Oil & Gas Co., capital \$150,000, inceptd. by R. A. Barry, J. M. Clarke, J. L. Echols.

Ark., El Dorado.—Arkansas Oil Corp., capital \$5,000,000, organized with Grant C. Stephens, Tulsa, Okla.; Kirby Riffel, Secy. Treas., Little Rock, Ark.

Fla., Arcadia.—Sampson Oil Co. organized with C. A. Roe, Prest.; John W. Pelot, Secy. Treas.; A. P. Hollingsworth, Gen. Mgr. (Lately noted inceptd., capital \$75,000.)

Ky., Louisville.—Old Wayne Oil Co., capital \$100,000, inceptd. by Geo. H. Carson, Frank Drewry, John M. Kearney.

Ky., Louisville.—Russell Oil Corp., capital \$100, inceptd. by Frank B. Russell, Bethel B. Veech and Percy N. Booth.

Ky., Morgan and Elliott Counties.—Sixty-Four Oil & Gas Co., capital \$50,000, inceptd. by J. J. Ginkel, J. C. Stealey, L. N. Pierce; all Fairmont, W. Va.

La., Shreveport.—Standard Oil Co. of Louisiana let contract to Austin Co., 16112 Euclid Ave., Cleveland, O., to construct 200x40-ft., 60x40-ft., and 60x25-ft. factory buildings, each 1-story; private plans.

Md., Baltimore.—Standard Distilling & Distributing Co., 400 O'Donnell St., will construct brick and concrete side-wall addition to plant; cost \$200.

Mo., Kansas City.—T. J. Cannon Drilling Co., capital \$20,000, inceptd. by T. J. Cannon, Kansas City, Mo.; F. R. Beebe, Springfield, Neb.; E. W. Blotz, Omaha, Neb.

Okla., Oklahoma City.—Spring Grove Oil & Gas Co., capital \$1,000,000, inceptd. by R. H. Pierce, R. G. Lowe, I. R. McQueen.

Tex., Baird.—Baird Oil & Development Co., organized with R. K. Vandervalk, Prest. and Thos. E. Powell, Secy. Treas.

Tex., Dallas.—Hughes Oil Co., capital \$240,000, inceptd. by R. F. Duggan, Rosser J. Coke and H. L. Edwards.

Tex., Ranger.—Ranger Gas Co., capital \$500,000, inceptd. by A. P. Barrett, F. S. Dudley and L. J. Wardlaw.

Tex., South Bend.—Prairie Pipe Line Co. has leased 40-acre site; will erect two \$50,000 steel tanks and install \$40,000 pumping station.

Tex., South Bosque (P. O. Waco).—E. F. Pumphrey and E. Mikeska, both of Fort Worth, will build pipe line from South Bosque field to railroad station costing \$15,000.

Tex., Sutherland Springs.—T. J. Williams Oil Co., capital \$250,000, inceptd. by T. J. and N. E. Williams, C. P. Nakes.

Tex., Temple.—Dixie Winner Co., capital \$150,000, inceptd. by B. N. Jarrell, Eppner and Virgie Cohen.

Tex., Waco.—Bosque Creek Oil & Gas Co., capital \$20,000, organized by E. H. Blanche, Alfred D. Adams and W. Jack Howell.

Tex., Waxahachie.—Texas Oil Products Co. plans increasing capital to \$1,000,000.

Va., Charlottesville.—Gas Plant.—City, R. Wheeler, Mayor, will improve gas plant; Walter Washbaugh, City Engr.

Va., Charlottesville.—Oil Fields Exploration Co., capital \$25,000, inceptd. with J. S. Grasty, Prest.; L. Barksdale, Secy.

W. Va., Round Bottom.—Gas Plant.—H. J. Booth, Pittsburgh, Pa., contemplates installing producer gas plant.

W. Va., Wayne County.—Drag Creek Oil & Gas Co., Huntington, W. Va., capital \$15,000, inceptd. by A. H. Lewis, J. M. Babcock, G. W. Armstrong; all Portsmouth, O.

Hydro-Electric Plants.

Ala., Dothan.—City, R. W. Lisenby, Clk., will develop hydro-electric plant on Choctawhatchee River to generate 20,000 H. P.; vote Feb. 14 on \$750,000 bonds. (Lately noted.)

Ala., Gadsden.—Alabama Power Co., Thos. W. Martin, Prest., Birmingham, Ala., filed petition for permission to construct electric transmission line from Gadsden, Ala., to point on Alabama-Georgia State line in Cherokee County, Ala.; 52 mi.; enable companies to interchange electric energy.

N. C., Charlotte.—Southern Power Co. announced preliminary and incomplete plans for \$8,000,000 hydro-electric plant on Catawba River; 35,000 H. P.

Ice and Cold-Storage Plants.

Ala., Birmingham.—Rushton Corp., J. Frank Rushton, Gen. Mgr., 2230 Ave. E., has purchased mch. for plant. (Lately noted to remodel.)

Tex., Fort Worth.—King Ice Co. increased capital from \$50,000, to \$300,000; changed name from Southern Cold Storage & Produce Co.

Tex., Rio Grande.—Rio Grande City Ice, Water & Light Co. contemplates enlarging plant.

W. Va., Eccles.—New River Collieries Co. will probably rebuild burned ice-manufacturing plant.

W. Va., Spencer.—Spencer Water & Ice Co., H. B. Thompson, Supt., will construct 4x39-ft. boiler-room, with brick stack 100 ft. high, costing \$20,000; install 2 boilers, 400 H. P.

Land Developments.

Fla., De Soto City.—De Soto City Groves Co., David C. Barrow, Prest.; E. J. Etheredge, Secy.-Treas.; develop 4000 acres; J. W. Turner, Engr., Lakeland, Fla. (Lately noted inceptd., capital \$300,000.)

Fla., Green Cove Springs.—Florida Farms & Industries Co., capital \$6,000,000, organized with R. L. Dowling, Prest.; acquired holdings of Southern Cattle Feeding Co. with 60,000 acres and 12,000 head of cattle, of St. John River Cattle Co. with 50,000 acres and Dowling-Shands Lumber Co. with 2 sawmills, crate material plant, planing mill, shingle mill and 20 mi. trackage with several engines; plans dividing land into small farms and constructing cane mill, cannery factory and crate mill; contemplates developing 500 acres in sugar-cane; build road from Green Cove Springs through entire tract.

Ga., Augusta.—Southern Improvement Co., capital \$30,000, inceptd. with W. G. Plagwitz, Gen. Mgr.

Ga., Lafayette.—Consolidated Textile Corp., Greensboro, N. C., will improve mill village; E. S. Draper, Landscape Archt., New York, and 11 E. 5th St., Charlotte, N. C.

Ky., Henderson.—Consolidated Textile Corp., Greensboro, N. C., will improve mill village; E. S. Draper, Landscape Archt., New York, and 11 E. 5th St., Charlotte, N. C.

Md., Havre de Grace.—St. James' African Methodist Episcopal Cemetery Co. inceptd. by Saml. J. Ennis, Jas. Mitchell, Lloyd Smith.

N. C., Raleigh.—Consolidated Textile Corp., Greensboro, N. C., will improve mill village; E. S. Draper, Landscape Archt., New York, and 11 E. 5th St., Charlotte, N. C.

N. C., Shelby.—Consolidated Textile Corp.,

Greensboro, N. C., will improve mill village; E. S. Draper, Landscape Archt., New York, and 11 E. 5th St., Charlotte, N. C.

Tex., Dallas.—Lang Floral & Nursery Co., Otto Lang, Prest., 1214 Main St., will increase capital from \$200,000 to \$350,000; develop 55-acre site in planting evergreens and building greenhouses; cost \$50,000.

Va., Lynchburg.—Consolidated Textile Corp., Greensboro, N. C., will improve mill village; E. S. Draper, Landscape Archt., New York, and 11 E. 5th St., Charlotte, N. C.

Va., Norfolk.—Lynnhaven Country Club contemplates acquiring 133-acre site on Lynnhaven River, constructing 9-hole golf course and erecting clubhouse.

Lumber Manufacturing.

Fla., Haines City.—Haines City Lumber & Novelty Co. purchased established plant; probably improve plant, increasing capacity.

La., Covington.—Geo. H. Koepf, Ramsey, La. (lately noted to probably rebuild burned plant), will erect 25,000-ft. capacity plant; invite bids; install 6-in. band saw, No. 6 carriage, edger, 60 H. P. engine, drykiln, 2-saw trimmer. (See Machinery Wanted—Engine; Sawmill Equipment.)

Md., Baltimore.—Wm. F. Shinnick & Co., 913 Fell St., capital \$25,000, inceptd. by Wm. F. Shinnick, Harry Eppler, Lawrence S. Kaufman.

Md., Havre de Grace.—Fahey Lumber & Produce Co., capital \$50,000, inceptd. with M. H. Fahey, Prest.; Jas. H. Fahey, V.-P.; M. W. Fahey, Secy.-Treas.; J. T. Reed, Mgr.; install mill; 40 H. P. steam boiler, general logging outfit costing \$14,000, all purchased; estimated output 1000 ft. hardwood.

Miss., Norfolk.—Denkmann Lumber Co., T. B. Doris, Prest., let contract to Dwight P. Robinson Co., 61 Broadway, New York, to construct building costing \$100,000; install sawmill mch., boilers, turbo-generators, motors, costing \$250,000; daily output 175,000 ft. lumber. (See Machinery Wanted—Sawmill Machinery; Boilers; Motors; Turbo-generator.)

N. C., Wilmington.—Town Creek Lumber Co., A. W. Campbell, Propr., will probably rebuild plant burned at loss of \$100,000.

Okla., Muskogee.—J. A. Butts Lumber Co., capital \$100,000, inceptd. by J. A. Butts, W. R. Holmes, both Muskogee; J. A. Springer, Haskell, Okla.

Tex., Fort Worth.—Sloan Lumber Co., Walter B. Sloan, Prest.-Mgr., 201 W. Railroad Ave., has building; will probably install small rip saw. (Lately noted inceptd., capital \$125,000.)

Tex., Houston.—Carter Lumber & Building Co. increased capital from \$250,000 to \$1,000,000.

Tex., Sherman.—Baxter Lumber Co., capital \$30,000, inceptd. by R. A. Baxter, Clinton Phelps, Rowan Mills.

Va., Portsmouth.—McEwen Lumber Co., W. B. McEwen, Prest., will probably rebuild planing mill burned at loss of \$35,000. (Supercedes recent item.)

W. Va., Clarksburg.—O. H. Stout Lumber Co., capital \$25,000, inceptd. by O. H. and C. A. Stout, C. H. Harris.

W. Va., Huntington.—Carolina Lumber Co., capital \$150,000, inceptd. by Walter Perkins, D. C. Thompson, both Huntington; Luther Hopkins, Danville, W. Va.

Metal-Working Plants.

Ky., Louisville.—Engraving.—Byron Engraving Works increased capital from \$175,000 to \$250,000.

Md., Baltimore.—Lamps, etc.—United Gas & Electrical Engineering Co., 700 W. Baltimore

St., capital \$100,000, inceptd. by Philip Raun, Solomon Berkowich, Jesse Fine; mfrs. lamps, gas and electrical fixtures, etc.

Md., Hamilton Station, Baltimore.—Cork Removers, etc.—Unique Necessity Corp., 5011 Catalpha Rd., capital \$10,000, inceptd. by Wilson M. Brady, George L. Allison, Thomas H. Green.

Mo., Kansas City.—Wire.—W. A. Laidlaw Wire Co. will establish baling-wire plant; move factory from Peoria, Ill.

Mining.

Ala., Plantersville.—Manganese.—Jackson Lumber Co. contemplates developing manganese ore land.

Ala., Plantersville.—Manganese.—W. W. Quarles interested in development of manganese land.

Md., Baltimore.—Minerals.—Baltimore Mineral Co., Keyser Bldg., capital \$150,000, inceptd. by J. Woodall Green, Bessie M. Williams, L. Ruff Ewell.

Okla., Tulsa.—Marble.—C. O. Frye interested in developing marble land.

Miscellaneous Construction.

Ala., Mobile.—Channel.—Chamber of Commerce interested in improving channel at Bayou la Batre; Major Earl North, United States Dist. Engr.

Ark., Arkansas City.—Levee.—War Dept., Mississippi River Comn., let contract to W. E. Clibourn, Conway, Ark., to prepare land in Station 790 for levee construction; station includes 125 acres.

Ark., Texarkana.—Levee.—Levee Dist. No. 2 Comms. let contract to R. H. Hutchinson at \$150,000 to repair and raise levee.

D. C., Washington.—Retaining Wall.—Navy Dept., Bureau of Yards and Docks, let contract to G. B. Mullin & Co., Contr., 329 11th St. N. W., to build retaining wall, electric duct system and construct paving and draining at Navy-yard.

Fla., Jacksonville.—Docks.—City Comn., John S. Bond, Chrmn., will vote March 1 on positive issue of \$600,000 bonds and tentative issue of \$400,000 bonds for municipal dock construction. (Lately noted contemplated.)

La., New Orleans.—Wharf.—Mississippi Warior Service, 321 Custom-house, will reconstruct and improve Sanders wharf; bids until Feb. 16; Theodore Brent, Federal Mgr., War Dept. Inland and Coastwise Waterways Service. (See Machinery Wanted—Wharf.)

Miss., Pascagoula.—Wharf, etc.—City will vote Feb. 14 on \$15,000 bonds for wharf construction and equipment. Address The Mayor.

Tenn., Clarksville.—Chimney.—American Snuff Co., 10th St., let contract to H. B. Heinicke, Contr., 147 4th Ave., New York, to construct 125-ft. smokestack at \$4000.

Tenn., Nashville.—River Terminals.—City Dept. of Nashville Transportations, A. V. Lipscomb, North Fifth Ave., has plans for 5-story 300x150-ft. terminal building; Freeland, Roberts & Co., Engrs., Life Bldg.

Tex., Houston.—Ship Channel.—United States Engrs., C. L. Hall, Asst. Engr., Galveston, Tex., invite bids for dredging second section of Houston ship channel to depth of 30 ft. width 150 ft.; an appropriation of \$1,530,000 is recommended to complete depth to turning basin of 30 ft.

Miscellaneous Enterprises.

D. C., Washington.—Dry Cleaning.—Associated Tailors' Dry Cleaning Co., capital \$100,000, inceptd. by C. Bleicher, A. Sherman, H. Wink.

Fla., Homestead—Publishing.—Homestead Enterprise, capital \$25,000, inctpd.; A. C. Crow, Prest.-Treas.; LaMonte Graw, V.-P.; Jennie Graw, Secy.

Fla., Miami—Publishing.—Real Estate Journal Publishing Co., capital \$25,000, inctpd. with Gordon Nye, Prest.; Noah G. Varney, V.-P.; G. Duncan Brossier, Treas.; R. E. Waters, Secy.

Fla., Miami—Asphalt Paving.—Belcher Asphalt Paving Co., S. A. Belcher, Prest., will increase capital from \$100,000 to \$1,000,000.

Fla., Miami—Transportation.—Miami Motor Transportation Co., capital \$10,000, inctpd. with Lewis Raquet, Prest.; W. S. Bergen, V.-P.; B. C. Bultman, Secy.-Treas.

Fla., Miami—Dairy.—Miami Dairy Products Co., capital \$100,000, inctpd. with Geo. A. Douglas, Prest.; W. M. Bennett, V.-P.; W. C. Tinsley, Secy.; R. E. McDonald, Treas.

Fla., Orlando—Building Materials.—Fletcher & Crawford Co., capital \$25,000, inctpd. with C. F. Crawford, Prest.; J. W. Fitzgerald, Secy.-Treas.

Fla., Starke—Mineral Water.—L. A. Davis, Jr., interested in forming company to develop mineral springs; has purchased 2 mineral-water springs and 80 acres land.

Ga., Atlanta—Transportation.—Southeastern Express Co., capital \$1,000,000, inctpd. with John B. Hockaday, Prest.

Ky., Louisville—Stockyards.—Bourbon Stockyards Co. has plans for concrete construction hoghouse costing \$200,000; D. X. Murphy & Bro., Archts., Louisville Trust Bldg.

La., New Roads—Publishing.—Pointe Coupee Banner will probably rebuild newspaper plant burned at loss of \$5000.

Md., Baltimore—Publishing.—Agricultural Publishing Co., 815 American Bldg., capital \$100,000, inctpd. by Benjamin Buswell, Ross Edwin Lynch, J. Warren Burgess.

Md., Baltimore—Ship Cleaning, etc.—Marine Co., 913 Fell St., capital \$5000, inctpd. by William F. Shinnick, Harry Eppler, Henry Irvin Rogers.

Md., Baltimore—Contracting.—Manns Contracting Co., 931 Fell St., capital \$20,000, inctpd. by George Mann, Wm. H. Jamieson, Thomas J. MacSpedden.

Md., Baltimore—Motion Pictures.—Maryland Amusement Co., 433 Title Bldg., capital \$50,000, inctpd. by Jesse B. Conway, Edwin T. Dickerson, J. Calvin Carney.

Md., Baltimore—Towel Supply.—Baltimore Towel Supply Co., 115 South St., capital \$200,000, inctpd. by Isaac Hirsler, William Fuchs, Jr., William T. Moore; acquired business of Baltimore Towel Supply Co., Independent Towel Service.

Md., Parkton—Farm Supplies.—Parkton Farm Supply Co., capital \$20,000, inctpd. with John Mays Little, Prest.; R. Parke Plowman, V.-P.; H. Ernest Krout, Secy.; Harvey M. Hale, Treas.; Harry Gruel, Mgr.; will erect frame building; dealer in farm supplies, etc.

Md., Cambridge—Hardware.—Samuel E. Hubbard Hardware Co. increased capital from \$10,000 to \$25,000.

Mo., Kansas City—Laboratories.—Jensen-Salsberry Laboratories, 520 W. Pennway St., let contract to Martin Goldbeck, 1827 East 48th St., to construct 1-story and basement 28x77-ft. building.

Okla., Mangum—Hardware.—Lovett-Wicker Hardware Co., capital \$10,000, inctpd. by L. W. and A. M. Lovett, G. S. Wicker.

Okla., Oklahoma City—Natorium, etc.—Oklahoma City Natorium & Hot Bath Treatment Co., capital \$200,000, inctpd. by M. D. Scott, M. D. Schofield, H. H. Hulten.

S. C., Florence—Office Supplies.—Lucas &

Van Auken, capital \$25,000, inctpd. by E. E. Lucas, W. S. Van Auken.

Tenn., Chattanooga—Printing.—R. P. Wood Co. inctpd. with capital of \$40,000.

Tenn., Chattanooga—Electrical Advertising.—Southern Electrical Advertising Co., capital \$25,000, inctpd. by M. McMillan, Walker Casey, E. H. Riddle.

Tex., Austin—Publishing.—American Publishing Co. increased capital from \$20,000 to \$70,000.

Tex., Galveston—Towing.—Bay Towing Co., 910 American Insurance Bldg., organized with W. D. Haden, Prest.; W. A. Wansley, V.-P.; J. K. Guyton, Secy.-Treas.; A. S. Shepherd, Mgr. (Lately noted inctpd.)

Tex., Rockdale—Potato Curing.—Robt. Caywood contemplates building potato-curing house.

Tex., Victoria—Fire Alarm System.—Fire Dept., V. S. Fritz, Chief, reported to install auxiliary fire-alarm system.

Va., Norfolk—Electrical Contractors.—Bradley-Duffee Electric Co., capital \$15,000, inctpd. with C. W. Bradley, Prest.; L. L. Duffee, Secy.

Va., Suffolk—Amusements.—Suffolk Amusement Corp., capital \$50,000, inctpd. with H. C. Everhart, Prest.; Ralph L. Roe, Secy.

W. Va., Clarksburg—Electrical Equipment.—Thompson-Degler Co., capital \$25,000, inctpd. by F. M. Thompson, H. M. Degler, both Clarksburg, L. F. Chalfant, Shinnston, W. Va.

W. Va., Martinsburg—Painting.—Entler & Mudge Co., capital \$35,000, inctpd. by George Edward Mudge, Elmer E. Entler, A. D. Pries.

W. Va., Wheeling—Laundry, etc.—Sisters of Good Shepherd will erect additions to laundry, coal bunkers and pergola, etc.; has plans.

Tex., Wichita Falls—Incinerator.—City, W. D. Cline, Mayor, let contract to Superior Garbage Incinerator Co., Contr., Dallas, Tex., at \$20,250 to construct duplicate 20-ton incinerator, stoker type; Julian Montgomery, Engr. (Lately noted let contract for 40-ton plant.)

Miscellaneous Factories.

Ala., Birmingham—Bakery.—Parisian Bakery Co., capital \$6000, inctpd. with E. C. Gilmore, Prest.-Treas.; J. R. Hitzman, Secy.

Ala., Mobile—Fruit Products.—Dixie Fruit Products Co., Jno. A. McDermott, Prest., will improve plant and increase capacity.

Ark., Little Rock—Motion Films.—R. D. Lewis Motion Film Co., 1114 W. Markham St., capital \$10,000, inctpd. by T. W. and Mrs. T. W. Sharp, L. T. Pellerin.

Fla., Fort Myers—Pulp and Paper.—Grass Fiber Pulp & Paper Corp., Wm. B. O'Neal, Representative, plans establishing pulp mills at Fort Myers, Miami and Moore Haven.

Fla., Green Cove Springs—Syrup.—Florida Farms & Industries Co., R. L. Dowling, Prest., contemplates establishing syrup mfg. plant. (See Land Developments.)

Fla., Jacksonville—Paints, etc.—Florida Paint & Cement Co., 312 Hill Bldg., organized with H. A. Wheeler, Prest.; K. R. Paderick, Secy.-Treas.-Mgr.; leased building; mfrs. liquid roofings and technical paints. Lately noted inctpd., capital \$20,000. (See Machinery Wanted—Minerals; Paints; Cement; Oils.)

Fla., Miami—Pulp and Paper.—Grass Fiber Pulp & Paper Corp., Wm. B. O'Neal, Representative, plans establishing pulp mills at Miami, Fort Myers and Moore Haven.

Fla., Moore Haven—Pulp and Paper.—Grass Fiber Pulp & Paper Corp., Wm. B. O'Neal, Representative, plans establishing pulp mills at Moore Haven, Fort Myers and Miami.

Fla., Tampa—Bottling.—Jno. T. Jordan Vinegar Co. will construct bottling plant.

Fla., Tampa—Laundry.—White Star Laundry Co., H. T. Richards, Propr., will improve plant, install \$20,000 mchry.

Florida—Tobacco.—Florida Sumatra Tobacco Co., capital \$500,000, inctpd. by G. H. and A. Y. Malone, D. C. Carmichael; all Dothan, Ala.

Ky., Barbourville—Bottling, etc.—Knox Bottling & Cream Co., capital \$7500, inctpd. by H. W. Bowman, F. W. Golden, Q. R. Lay.

Ky., Hazard—Bottling.—Mint Cola Bottling Co., capital \$8000, inctpd. by J. D. Davis, Lee G. Graef, W. G. Sellers.

Ky., Louisville—Candy.—National Candy Co., 829 S. Floyd St., let contract to Alfred Struck Co. to erect 6-story and basement plant addition; reinforced concrete construction; cost \$900,000; D. X. Murphy & Bro., Archts., Louisville Trust Bldg. (Lately noted.)

Ky., Louisville.—Standard Sanitary Mfg. Co., Pittsburgh, Pa., increases capital from \$12,000,000 to \$20,000,000.

Ky., Louisville—Soap.—Colgate & Co., Austan Colgate, Jersey City, N. J., plans establishing plant to mfrs. soap; reported.

Ky., Louisville—Chemicals, etc.—Kentucky Color & Chemical Co. increases capital from \$70,000 to \$200,000.

Ky., Louisville—Artificial Limbs.—Emmet Blevens Co., capital \$125,000, inctpd. by Emmet Blevens, Mabel C. Miller, Chas. C. Tunis; consolidation of Emmet Blevens Co. and Blevens Artificial Limb Mfg. Co.

Ky., Owensboro—Milk Products, etc.—Evansville Pure Milk Co., Evansville, Ind., let contract to Tenness & Greenwell to construct 1-story brick building; will install machinery to mfrs. ice cream and milk products; install refrigerating plant; total cost \$18,000; W. T. Power, Mgr., Oakland, Ind.

La., Swartz—Carbon.—American Carbon Co., capital \$1,500,000, organized with M. C. Redmond, Prest.; Earl P. Hartshorne, Secy.-Treas.; both Monroe, La.

Md., Baltimore—Chemicals.—Pharmaceutical Distributing Co., 324 S. Hanover St., capital \$15,000, inctpd. by Abraham Klein, Jos. Cherrier, Barnett H. Cooper.

Md., Baltimore—Chemicals, etc.—National Oil & Disinfectant Co., Cottage Ave. and Kingsley St., capital \$150,000, inctpd. by John G. Platt, Nathan and Charles Voloshen.

Md., Baltimore—Clothing.—Strouse-Baer Co., 501 E. Preston St., let contract to Price Construction Co. to erect 1-story 113x57x64 ft. plant addition; brick construction.

Md., Baltimore—Musical Instruments.—Lord Baltimore Musical Co., 11 N. Howard St., capital \$20,000, inctpd. by Aaron and Esther Burdwise and Abraham Quall.

Md., Baltimore—Wearing Apparel.—New York Ladies' Outfitters, 403 W. Lexington St., capital \$25,000, inctpd. by Katherine E. Mueller, Jess Fine, Morris Bergman.

Md., Baltimore—Hide and Fur.—Baltimore Hide & Fur Co., S. W. Conway St., inctpd. by Albert Langsner, Jacob S. New, Sidney A. Goodman.

Md., Baltimore—Paints, etc.—Bond Bros., 407 N. Howard St., capital \$25,000, inctpd. with Henry M. Bond, Wm. Edgar Byrd, Frank Arnold.

Md., Baltimore—Enamels and Paints.—National Bituminous Enamel & Paint Co., J. R. Broderick, Prest., Lawrence and Woodall Sts., will construct two 3-story 70x35-ft. additional units; concrete and brick; private plans; will invite bids in spring.

Md., Baltimore—Mattresses.—George Spindler Co., 608 West Pratt St., capital \$100,000, inctpd. by Herbert O. Auburn, John E. Adolph, Geo. Spindler, Jr.

Md., Baltimore.—Pyrodento.—Pyrodento Co.,

R. W. O. Swartwout, 1212 West Saratoga St., will alter factory and office building.

Md., Frederick—Clothing.—Isaac Hamburger & Sons, Baltimore and Hanover Sts., Baltimore, Md., will establish clothing factory; purchased building; will remodel; Ernest Myers, Contr., Frederick.

Md., Baltimore—Middy Blouses, etc.—Paul Revere Manufacturing Co., 2103 Bolton St., capital \$50,000, inceptd. by Henry and Annie Klask, Michael Miller.

Md., Frederick—Ice Cream.—Nicodemus Ice Cream Co. organized, H. O. Nicodemus, Prest., East Patrick St.; let contract to Roy G. Nuse to construct 3-story 63x53-ft. ice-cream plant; let contract to Lloyd C. Culler, Pythian Castle Bldg., to construct 1-story 40x16-ft. boiler-house; C. E. Crum, Engr. for both, (Lately noted inceptd., capital \$100,000.)

Md., Westminster—Chemicals.—Court-Lill Chemical Co., capital \$109,000, inceptd. by Chas. R. Foutz, Claude Allgire, Wm. C. Lilly.

Miss., Natchez—Coffee.—Interstate Coffee Co. will re-establish plant burned at loss of \$10,000 to \$15,000.

Mo., Springfield—Hats.—Kintrea Hat Co., inceptd. with \$15,000 capital.

N. C., Madison—Garters.—Gem Dandy Garter Co., capital \$100,000, inceptd. by Penn Bros. Suspender Co., H. J. and Green Penn.

Okla., Okmulgee.—V. F. Self & Co. increased capital from \$24,000 to \$100,000.

Mo., St. Louis—Hats.—D. H. Governick Hat Co. leased 2d floor of building; equip to mfr. women's hats.

N. C., Henderson—Leaf Tobacco.—Farmers' Leaf Tobacco Co., capital \$2,000,000, inceptd. by C. D. Riggan, R. J. Corbitt, Sam T. Peace; contemplates construction factory building.

N. C., Hickory—Mattresses, etc.—Hickory Mattress & Springs Co., D. P. Cline, H. J. Rockett, B. B. Cashion, Props.; will establish factory to mfr. mattresses and bed springs.

N. C., Rutherford College—Clothing.—Universal Work Garment Corp., capital \$100,000, plans establishing factory to mfr. women's and children's garments.

Okla., Muskogee.—Reed-McIntosh-Morrison-Durant Corp., capital \$250,000, E. C. Reed, I. S. Warriar; both Checotah, Okla.

Okla., Shawnee—Clothing.—Kerfoot-Jennings Co. increased capital from \$10,000 to \$20,000.

Okla., Tulsa—Chemicals.—Phantax Chemical Co., A. G. Coleman, Prest., Memphis, Tenn., will construct 7-story factory building.

Okla., Tulsa—Clothing.—Caplin-Simpkins Ready-to-Wear Co., capital \$50,000, inceptd. by Louis and A. W. Caplin, N. L. Simpkins.

Tex., Harrisburg—Powder.—Victory Washington Powder Co., capital \$10,000; E. C. Davis, Chas. Weinman, L. C. Preston.

S. C., Orangeburg—Varn & Fedder Co., capital \$4000, inceptd. with P. M. Varn, Prest.; M. H. Felder, Secy.-Treas.

Tenn., Chattanooga—Mattresses.—Jewel Mattress Co., capital \$15,000, organized with John O. Fowler, Prest.; Paul Davis, V.-P. and Mgr.; G. O. Sanders, Secy.-Treas., 210 W. 9th St.; has purchased mchy.; will install.

Tenn., Knoxville—Ice Cream.—Mono Service Cream Co., 409 Chamberlain St., let contract to J. M. Dunn & Son Building Construction Corp., Broadway and Depot St., to erect 4-story and basement 98x70-ft. plant addition; Van R. H. Collin, Archt.-Engr., 35 Warren St., New York. (Lately noted.)

Tenn., Memphis—Bottling.—Memphis Bottling Corp., capital \$25,000, inceptd. by John W. and E. L. Storms, P. C. Clarke.

Tex., Fort Worth—Candy.—King Candy Co., John P. King, Prest., increases capital from \$150,000 to \$300,000.

Tex., Marshall—Pitts-Lothrop Co., capital \$15,000, inceptd. by Grafton Lothrop, Howard Miller, J. M. Pitts.

Tex., San Antonio—Pickles.—King-Richter Mfg. Co., A. F. Richter, Owner, 1001 Morales St., will probably rebuild pickle plant burned at loss of \$14,000 to \$18,000.

Va., Hopewell—Paints, etc.—Special Products Co., capital \$250,000, inceptd. with J. C. Fleming, Prest.; Clay Littleton, Secy.

Va., Roanoke—Coca-Cola.—Roanoke Coca-Cola Bottling Co., G. D. Whitesell, Secy.-Treas.-Mgr., will construct 2-story 106x70-ft. building, costing \$15,000 to \$20,000; H. M. Miller, Archt.; bids about Feb. 10. (Lately noted to rebuild plant.)

Va., Roanoke—Bottling.—3-C Nectar Sales Co., 34 Church Ave., capital \$10,000, organized with J. H. Carmichael, Prest.-Mgr.; Kenneth C. Patty, Secy.-Treas.; will construct fireproof buildings, average cost \$30,000; install bottling machinery; daily output 500 crates bottled goods to each plant. (See Machinery Wanted—Bottling Equipment.)

W. Va., Huntington—Rubber.—Atlas Rubber Co., capital \$5000, inceptd. by E. F. Hartley, E. A. Jordan, C. L. Hibner.

W. Va., Logan—Bottling.—Logan Bottling Works, F. S. Martin, let contract to install low pressure bottling systems; will double plant capacity.

W. Va., Morgantown—Rubber.—United States Armored Tube Co., capital \$50,000, inceptd. by W. A. Ream, E. D. Tumlin, both Morgantown; H. M. Ream, Mansfield, O.

W. Va., Round Bottom—Glass.—H. J. Booth, Pittsburgh, Pa., contemplates establishing glass plant.

W. Va., Sturgis—City—Macaroni, etc.—Morgantown Macaroni & Supply Co., capital \$250,000, inceptd. with R. A. Layton, Secy.; Jas. H. McGraw, Treas.; all Morgantown. W. Va.; purchased Barley Food Co.'s plant; will remodel to mfr. macaroni and other food supplies; purchased mchy.; will install.

Motor Cars, Garages, Tires, Etc.

Ala., Anniston—Automobile Accessories.—Automatic Specialty Co. have begun construction on \$200,000 building for mfr. automobile accessories; 2 stories; 50x150 ft.; reinforced concrete; steel frame; James Nunnally, Contr.

Ala., Anniston—Automobile Accessories.—C. H. Rutherford, Atlanta, Ga., and B. L. Davis, Macon, Ga., formed company, capital \$200,000; will build automobile accessory plant; 2 stories; steel-frame building.

Ala., Montgomery—Automobiles.—Square Deal Motor Co., capital \$25,000, organized with W. R. Wylie, Prest.; L. H. Seawell, V.-P.; W. J. De Bardiaben, Secy.-Treas.

Ark., Pine Bluff—Filling Station.—Reed Oil Corp., Tulsa, Okla., will erect filling station; \$15,000.

Fla., Madison—Tires.—Blalock & Co. have under construction 2-story corrugated-iron building.

Fla., Orlando—Motor Parts.—Motor Parts Service Co., capital \$25,000, organized with C. Williams, Prest.-Treas.; D. C. McMullen, V.-P.; Cephas Gelger, Secy.

Fla., Titusville—Motors.—Superior Motor Works, capital \$100,000, organized with Thomas G. Knight, Prest.; J. Neff, V.-P.; R. B. Hawley, Secy.; E. J. Stewart, Treas.

Ga., Thomson—Garage.—R. E. Perry will probably rebuild garage; loss \$15,000.

Ky., Louisville—Automobile Supplies.—Dixie Automobile Supply Co. increases capital from \$250,000 to \$500,000.

La., Houma—Garage.—Daigle's Garage will probably rebuild burned building; loss \$6000.

Md., Baltimore—Automobiles.—Automotive Parts Corp., Greenway Apartments, capital \$50,000, inceptd. with Oscar A. Reed, Thomas B. Webster, Frederic B. Warder.

Md., Baltimore.—Automobile Adjustment Assn. of America, 517 Equitable Bldg., capital \$100,000, inceptd. with Brosus Reed, Wm. F. Shenton, Alpheus J. Sherman.

Md., Baltimore—Garage.—Harry Markwitz, 1825 El Cambria St., will erect garage; 1-story 51x68 ft.; D. H. Jenkins, Contr., 2870 Jasper St.

Md., Baltimore—Garage.—Waldorf Development Co., J. Meisen, Reisterstown Rd., will erect garage; 1-story, 100x200 ft.; brick; Stanislaus Russell, Archt., 11 E. Lexington St.

Mo., Springfield—Filling Station.—Standard Oil Co. will erect automobile service and filling station.

N. C., Fayetteville—Motors.—Armord Motors Co., capital \$100,000, inceptd. with B. H. Hume, G. D. Graveley, N. L. Sasser.

N. C., Charlotte—Automobile Supplies.—Monarch Automobile Supply Co., capital \$100,000, inceptd. with M. S. Macks, J. G. Johnston, C. F. Smithson.

N. C., Charlotte—Garage.—Standard Oil Co. has under construction a \$125,000 automobile repair plant and garage; 2-story.

N. C., Fayetteville—Motors.—Armord Motors Co., capital \$100,000, inceptd. with G. D. Graveley, Baltimore, Md.; B. D. Hume, N. L. Sasser; both Fayetteville, N. C.

Tex., Brownsville.—Dennett Motor Sales Co. increases capital from \$30,000 to \$35,000.

Tex., El Paso—Cleveland Square Garage, capital \$75,000, inceptd. with S. S. Croom, A. B. Gasse, W. L. Campbell.

Tex., Houston—Garage.—Humble Oil & Refining Co. has buildings; will construct 12 individual work compartments, machine shop, woodworking shop, trim shop and paint shop; \$10,000.

Tex., Houston—Automobile Parts.—Automobile Parts Mfg. Corp., capital 2500 shares of no par value, inceptd. with J. E. Porter, F. M. Lucore, both Houston; C. T. Cobee, Wilmington, Del.

Tex., New Braunfels—Garage.—Alwin Kroeche will probably rebuild garage.

Va., Norfolk—Automobiles.—Marmon-Haynes Corp., capital \$50,000, organized with Vincent Cuccia, Jr., Prest.; Joseph M. Cuccia, Secy.; J. A. Markel.

W. Va., Clarksburg—Automobile Equipment.—Thompson-Degler Co., capital \$25,000, inceptd. with P. M. Thompson, H. M. Degler, E. W. Thompson.

W. Va., Keystone—Automobiles.—Keystone Motor Co., capital \$25,000, inceptd. with W. W. Wood, W. E. Williams, N. B. Kash.

W. Va., Martinsburg—Garage.—M. A. Little will erect garage.

W. Va., Martinsburg—Garage.—Stephen Bowers will erect automobile showroom and garage; 2-story and basement 99x53 ft.; Richard R. Feller Co., Contr.; C. E. Kent, Archt., 712 N. Queen St.

Railway Shops, Terminals, Roundhouses, Etc.

Ga., Southover.—M. A. Long Co., Munsey Bldg., Baltimore, Md., are taking subbids on engine-house for Atlantic Coast Line R. R.; J. E. Willoughby, Ch. Engr., Wilmington, N. C.

Ky., Loyall.—Louisville & Nashville R. R. W. H. Courtenay, Ch. Engr., Louisville, Ky., will construct 600-ton coaling and sanding station; reinforced concrete; provide facilities for coaling and sanding locomotives on 4 tracks; Roberts & Schaefer Co., Contrs., Chicago, Ill. (Previously noted.)

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

Mo., Kansas City, Tex., cont. and return \$100,000.

Okla., Stillwater, Tex., will convey to Chicago.

Tex., San Antonio, Ry., F. H. Ry. will have house and

Road

Ala., Aut. introduces mi. streets or brick or bids about

Engr., Birmingham Machinery

Ala., Birmingham, blids.

Ala., Gadsden, tarvin and material.

D. C., W. Yards and lin & Co., paving and electric du

Fla., Fort Lake, and open

Co., Titusville, mi. State-

County (in Browne, a Fla. (La

Fla., Jacksonville, walks in

Fla., Jacksonville, Bond, Chr. on positive sue \$120,000

Fla., Pensacola, will const etc.; bids

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Fla., St. Petersburg, Director o sidewalks

Farmer C. inviting bi

Ga., Cambridge, improvement

Ga., Cedarsville, improve r

Ga., Cedarsville, will const clay surfac

\$34.84; St. Ala.; A. A. (Lately no

Ga., Lyons, under con

Vermont and Ga., St. Works, J.

Whitaker low bidden

low Engin Savannah, ing blids.)

Ky., New will const road; \$12,0 land R. I. (See Mach

Mo., Kansas City.—Missouri, Kansas & Texas, Ry., Frank Rinzer, Ch. Engr., Dallas, Tex., contemplates extensions to freighthouse and rearrangement of its yard facilities; \$200,000.

Okla., Shawnee.—Atchison, Topeka & Santa Fe Ry., F. M. Bisbee, Ch. Engr., Amarillo, Tex., will construct coaling station and cinder conveyors; Fairbanks, Morse & Co., Contrs., Chicago, Ill. (Previously noted.)

Tex., Smithville.—Missouri, Kansas & Texas Ry., F. H. Ringer, Ch. Engr., St. Louis, Mo., have plans drawn for shop building, roundhouse and storeroom; \$700,000.

Road and Street Construction.

Ala., Anniston.—City, H. B. Rudisill, Mayor, introduces ordinances covering paving on 12 mi. streets with asphaltic concrete, bitulithic or brick on reconstructed base; cost \$600,000; bids about Feb. 25; Robert L. Totten, Const. Engr., Birmingham, Ala. (Lately noted. (See Machinery Wanted—Paving.)

Ala., Birmingham.—Jefferson County Commissioners will hard-surface 20th St.; invites bids.

Ala., Gadsden.—City will rebuild streets, tar and other road bituminous surfacing material. Address The Mayor.

D. C., Washington.—Navy Dept., Bureau of Yards and Docks, let contract to G. B. Mullin & Co., Contrs., 333 11th St., to construct paving and draining, build retaining wall and electric duct system at Navy-yard.

Fla., Port Pierce.—State Road Dept., Forest Lake, Chrmn., Tallahassee, Fla., received and opened bids of Ackerman Construction Co., Titusville, Fla., on the construction 9.55 mi. State-aid road No. 7 between St. Lucie County line and Okeechobee City; Chas. A. Browne, State Highway Engr., Tallahassee, Fla. (Lately noted inviting bids.)

Fla., Jacksonville.—City Comsn. plans sidewalks in Hemming Park.

Fla., Jacksonville.—City Comsn., John S. Bond, Chrmn., will pave streets; vote Mar. 1 on positive issue of \$100,000, and tentative issue \$150,000. (Lately noted contemplating.)

Fla., Perry.—Town, Aulay McAulay, Clk., will construct 37,000 sq. yds. street paving, etc.; bids until Feb. 24; H. S. Jaudon Engineering Co., Engr., Elberton, Ga. (See Machinery Wanted—Paving.)

Fla., St. Petersburg.—City, G. B. Shepard, Director of Finance, will construct 800 lin. ft. sidewalks along north side yacht basin; H. A. Farmer Concrete Co., Contr. (Lately noted inviting bids.)

Ga., Cartersville.—City plans street improvements. Address The Mayor.

Ga., Cedartown.—Polk County Commrs. will improve roads; issue \$500,000 bonds.

Ga., Cedartown.—Polk County Commrs. Roads and Revenues, Whit K. Russell, Chrmn., will construct 6.5 mi. road grading and sand-clay surfacing; Federal-aid Project No. 165; \$34,884; Stanley-Singer Co., Contr., Lafayette, Ala.; A. A. Simonton, Div. Engr., Cedartown. (Lately noted inviting bids.)

Ga., Lyons.—Toombs County Commrs. have under construction road from Vidalia to Mt. Vernon and from Vidalia to Lyons.

Ga., Savannah.—City, Director Public Works, J. W. Motte, will pave W. Broad, Whiteaker and Drayton Sts.; 75,338 sq. yds.; low bidders, Dixon Contracting Co. and Hutton Engineering & Construction Co., both Savannah, at \$111,321. (Lately noted inviting bids.)

Ky., Newport.—Campbell County Commrs. will construct 2 mi. waterbound macadam road; \$12,000 available; bids about April; Roland R. Pyne, County Engr. (Lately noted. (See Machinery Wanted—Road Construction.)

Ky., Owensboro.—City, John C. Calhoun, Mayor, will improve Locust St.; construction in spring; E. B. Shifley, Structural Engr.

La., Alexandria.—Rapides Parish Police Jury, J. F. Ball, Prest., will clear and grade and construct culverts on 9 mi. Glenmora-Westport highway; bids until Feb. 8; Ira W. Sylvester, Parish Engr. (See Machinery Wanted—Road Construction.)

La., New Iberia.—Highway Dept., Board State Engrs., 332 Maison Blanche Annex, New Orleans, La., will construct 4.60 mi. New Iberia-Burke Highway, Iberia Parish; \$58,772.45; A. E. Perry, Contr., Colfax, La.; Duncan Baie, State Highway Engr., New Orleans, La. (Lately noted inviting bids.)

Miss., Forest.—Scott County Commrs. Dist. No. 1 will improve and construct roads; \$110,000; will invite bids. (See Machinery Wanted—Road Construction.)

Miss., Ripley.—Tippah County Supvrs. will construct roads; contracts let.

Mo., Cape Girardeau.—City, H. H. Haas, Mayor, will pave streets; bids about Feb. 15; Ed. Eiler, Engr.

Mo., Charleston.—Board Public Works, Mr. Smith, Secy., will pave streets; bids in March; L. T. Bertha Engineering Co., Engr., House Bldg.

Mo., Osceola.—St. Clair County, David O. Thomas, Supt. Highways, will receive bids until Jan. 28 on paving 3 mi. Mascoutah road. Section No. 28; concrete; State is planning to let contract within next month for paving Mascoutah-New Memphis road.

N. C., Charlotte.—City Commrs. plan paving Crescent Ave.; 15-ft. driveways, etc.

N. C., Lillington.—Harnett County Commissioners will expend \$500,000 in constructing highways.

N. C., Lumberton.—City plans to issue \$152,000 bonds for street paving and sewer extension. Address The Mayor.

N. C., Raleigh.—D. Allen & Co. let contract to Elliot & Showles, Durham, N. C., for paving and draining various streets in Hayes-Barton.

N. C., Sylva.—Jackson County Commrs. will construct road from Sylva to South Carolina line.

N. C., Washington.—Beaufort County Commissioners will hard-surface roads; 10 mi.; \$400,000 available; Gilbert C. White, Engr., Durham, N. C.

N. C., Washington.—City will construct 65,500 sq. yds. vitrified brick or sheet asphalt paving; bids until Feb. 10; P. C. Painter, City Engr. (See Machinery Wanted—Paving; Paving Material.)

N. C., Winston-Salem.—Forsyth County Commrs. plans voting on \$2,000,000 bonds for roads.

Okla., Ardmore.—Carter County Commrs. plan gravel road on proposed Lone Grove-Healdton Rd.; 16 mi.; bids opened.

Okla., Duncan.—City Commrs., R. W. Cline, City Mgr., will pave streets and construct storm sewers; \$750,000; Johnson & Benham, Const. Engrs., Firestone Bldg., Kansas City, Mo. (Previously noted.)

Okla., Enfield.—State Highway Dept., Oklahoma City, Okla., will construct 23 mi. Jefferson highway through McIntosh County; gravel; \$254,427.60; A. A. Davis, Contr., Oklahoma City, Okla. (Previously noted inviting bids.)

Tenn., Knoxville.—State Dept. Highways, Nashville, Tenn., will construct 12.76 mi. State Highway No. 2 from Station 130 to Loudon County line; 8-in. Telford base, topped with 2 in. Kentucky rock asphalt; \$395,000; T. L. Peters & Co., Contrs., Knoxville, Tenn. (Lately noted inviting bids.)

Tex., Ballinger.—Runnels County Commrs. Road Dist. No. 2 will construct roads; vote Feb. 26 on \$100,000 bonds. (Lately noted.)

Tex., Beeville.—City will construct 14,340 sq. yds. paving; 6-in. reinforced concrete base, with 1-in. asphalt topping; bids opened Jan. 25; Roy Fenner, City Engr. (See Machinery Wanted—Paving.)

Tex., Childress.—Childress County Commrs. will construct highway from Childress north to Red River; \$70,000; contract let.

Tex., Coleman.—Coleman County Commrs. will invite bids on 6 1/2 mi. Coleman-Goldbush road; graveled hard surface; \$215,000 available; contemplate \$300,000 Federal and State aid.

Tex., Coleman.—Coleman County, L. G. Mathews, County Judge, will construct 6.78 mi. gravel road, concrete drainage structures, etc., on Coleman-Goldbush road; bids until Jan. 31; W. E. Dickerson, County Engr. (Lately noted. (See Machinery Wanted—Road Construction.)

Tex., Corpus Christi.—Nueces County Commissioners, H. R. Sutherland, County Judge, will grade and drain 5.51 mi. Robstown-Calallen road; construction by county; O. N. Powell, County Engr.

Tex., El Paso.—J. E. Macon of Macon Realty Co., 612 Mills Bldg., will pave streets.

Tex., Fort Worth.—City will repair paving on streets; \$20,300; J. F. Wills, Contr.; D. L. Lewis, City Engr.

Tex., Harlingen.—City will improve streets; voted \$40,000 bonds. Address The Mayor. (Lately noted to vote.)

Tex., Hillsboro.—Hill County Commrs. will grade and drain 9.9 mi. State Highway 2A, Colorado Gulf Highway from Johnson County to Precinct 1 and 2; Bryant & Huffman, Engrs., 211 Littlefield Bldg., Austin, Tex.

Tex., Lipscomb.—Lipscomb County Commrs. will improve road.

Tex., Milam.—Cameron County Commrs. will construct roads on State Highway No. 36 through Road Dist. No. 2 and 23; A. F. Mitchell, Engr.

Tex., Ochiltree.—Ochiltree County Commrs. will regrade road.

Tex., Pittsburgh.—Camp County Commrs., J. A. Efrud, County Judge, will grade, drain and surface 9.92 mi. State Highway No. 5; Wilder & O'Neil, Engrs., Mt. Pleasant, Tex.

Tex., Plainview.—Hale County Commrs., Plainview, Tex., and Briscoe County Commissioners, Silverton, Tex., will construct 46 mi. National Bankhead highway; graded road; Lewis Griffin, or E. H. Perry, in charge; G. M. Phelps, Engr.; all Plainview. (Lately noted.)

Tex., San Antonio.—Bexar County Commrs., Augustus McCloskey, Judge, will grade and surface 5.1 mi. Bandera Road; bituminous macadam highway; \$90,911.20; contract to J. F. Thompson for concrete work, Uvalde Co. for bituminous stopping and Bexar County for gravel and grading. (Supersedes recent item.)

Tex., San Antonio.—Bexar County Commrs., Augustus McCloskey, County Judge, will surface 4.25 mi. Gonzales road with 1 in. bituminous topping; 40,000 sq. yds.; \$27,200; Uvalde Rock Asphalt Co., Contr.; C. E. Hoff, County Engr. (Lately noted inviting bids.)

Tex., Sinton.—San Patricio County Commrs., J. C. Houts, County Judge, has approved plans for constructing 15.1 mi. road in Road Dist. No. 1; surface with gravel; Federal Aid Project No. 180B; construction by county; A. C. Pancoast, County Engr.

Tex., Sonora.—Sutton County Commrs., L. W. Elliott, County Judge, will construct 19 mi. State Highway No. 4 from Schleicher County south through Sonora; cost \$150,000;

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

\$400,000 available; Vaughan & Foster Co., County Engrs.

Tex., Stamford.—City plans grading and graveling streets. Address The Mayor.

Tex., Stanton.—Martin County Comms. contemplates constructing 12 mi. gravel surfaced road on State Highway No. 1; \$120,000; R. W. Baker, County Engr.

Tex., Tyler.—City, H. J. Graeser, City Mgr., will improve road as follows: Gravel surface 2½ mi. Ennis-Crisp Rd.; 2 mi. Ennis-Italy Rd.; 7 mi. Ennis-Emhouse Rd.; 8½ mi. Ennis-Waxahachie Rd.; bids until Jan. 27; G. G. Edwards, Engr., Ennis National Bank Bldg., Ennis, Tex. (See Machinery Wanted—Road Construction.)

Tex., Waxahachie.—Ellis County Comms. will improve road as follows: Gravel surface 2½ mi. Ennis-Crisp Rd.; 2 mi. Ennis-Italy Rd.; 7 mi. Ennis-Emhouse Rd.; 8½ mi. Ennis-Waxahachie Rd.; bids until Jan. 27; G. G. Edwards, Engr., Ennis National Bank Bldg., Ennis, Tex. (See Machinery Wanted—Road Construction.)

Tex., Wellington.—Collingsworth County Comms. will upgrade road.

Va., Lynchburg.—City, E. A. Beck, City Mgr., will pave Church St.; 12,000 yds. brick, sheet asphalt or concrete; bids until Jan. 29; B. A. Bennett, Engr. Supersedes recent item. (See Machinery Wanted—Paving.)

Va., Martinsville.—Town, A. S. Gravely, Clk., will pave streets; voted \$200,000 bonds.

Va., Portsmouth.—State Highway Comn., Richmond, Va., will construct Portsmouth-Suffolk highway; invites bids.

W. Va., Charleston.—Kanawha County Commissioners, S. E. Childress, Prest., will grade roads in Elk Dist.; 20,000 ft.; culverts, bridges, etc.; bids until Feb. 12; F. G. Burdett, County Road Engr. (See Machinery Wanted—Road Construction.)

W. Va., Spencer.—Roane County Comms. will grade and drain 2.5 mi. Spencer-Clendenin roads, 26 ft. wide; Calvin, Coleman & Powers, Contrs., Walton, W. Va.

Sewer Construction.

D. C., Washington.—District Comms., 509 District Bldg., let contract to Warren F. Brenizer Co., 101 New York Ave. N. E., to construct 700 ft. of 9 ft x 16 ft. 9 in. concrete sewers costing \$8490; A. E. Phillips, Sanitary Engr. (Lately noted bids until Jan. 13.)

Fla., Jacksonville.—City Comn., John S. Bond, Chrmn., will construct storm and sanitary sewers in 12th St.; 1330 ft. terra-cotta sanitary sewer and 2 manholes; 2370 ft. 12 to 24-in. reinforced concrete pipe; 2400 ft. 8-in. terra-cotta pipe; 50 8x5-in. terra-cotta Y's; 16 cast-iron manhole frames and covers; bids until Feb. 4. (See Machinery Wanted—Sewers.)

Fla., Jacksonville.—City Comn., John S. Bond, Chrmn., will vote March 1 on positive issue of \$400,000 bonds and tentative issue of \$150,000 bonds for drains and sewers. (Lately noted contemplated.)

Fla., Pensacola.—City, Mayor Sanders, will repair sewer system on Alcaniz St.; cost \$2181; Frank Jarrett, City Engr.

Fla., Perry.—Town, Seward O'Quinn, Mayor, will construct 12,500 lin. ft. sanitary sewers with manholes and appurtenances; bids until Feb. 24; H. S. Jaudon Engineering Co., Engr., Elberton, Ga. (See Machinery Wanted—Sewers.)

Mo., Joplin.—City will construct 5-mi. concrete sewer in Shoal Creek and Chetwood Sewer Projects; day labor under supervision of O. P. Mahoney.

Mo., Springfield.—City let contract to John Spandri to construct sewer system in Dist. No. 36; costing \$5873.82; W. C. Culler, Engr.

N. C., Lumberton.—City will extend sewers

and pave streets; contemplates issuing \$182,000 bonds. Address The Mayor.

N. C., Washington.—City will construct 10 to 30-in. vitrified pipe storm sewers with trench 6 to 10 ft. deep costing \$70,000; bids until Feb. 10; P. C. Painter, City Engr. (See Machinery Wanted—Sewers.)

Okla., Duncan.—City, R. W. Cline, Mgr., will install storm sewer system and improve streets; \$750,000; Johnson & Benham, Consit. Engrs., Firestone Bldg., Kansas City, Mo.

S. C., Blacksburg.—City, N. W. Harden, Mayor, will vote March 20 on bonds to install sewer and water systems.

Tex., Beeville.—City will construct storm sewer on Washington St.; bids until Jan. 25; Roy Fenner, City Engr. (See Machinery Wanted—Sewers.)

Tex., Graham.—City contemplates laying mains and enlarging sewage-disposal plant to double present capacity; build additional reservoir dam, extend and enlarge water mains, pumping plant and filtration vats; total cost \$100,000. Address The Mayor.

Tex., Harlingen.—City will install sewer, light and water systems; voted \$60,000 bonds. Address The Mayor. (Lately noted to vote.)

Tex., Plainview.—City, C. H. Saigling, Secy., will extend and improve sewer and water system; issued \$100,000 bonds. (Previously noted to vote.)

Telephone Systems.

Ala., Alabama City.—Southern Bell Telegraph & Telephone Co. reported to expend \$20,000 to improve system.

Ala., Gadsden.—Southern Bell Telegraph & Telephone Co. reported to expend \$20,000 on system.

Ala., Montgomery.—Southern Bell Telephone & Telegraph Co., Atlanta, Ga., S. G. P. Rathborne, Dist. Mgr., install aerial and underground cables and make additions to switchboard.

Ark., Forrest City.—Forrest City Telephone Co. will probably rebuild burned plant.

N. C., Cape Hatteras.—Navy Dept., Bureau of Yards and Docks, Washington, D. C., let contract to Donnell-Zane Co., Contr., 359 Broadway, New York, to construct battery-charging house and four-man barracks at \$20,565.

Ark., Little Rock.—Southwestern Bell Telephone Co. let contract to E. A. Steiniger, St. Louis, Mo., to erect fireproof building costing \$50,000. (Lately noted to remodel plant.)

Fla., Winter Park.—Winter Park Telephone Co., capital \$30,000, inceptd. with G. H. Galloway, Prest.-Gen. Mgr.; L. K. Galloway, Secy.-Treas.

Ky., Nicholasville.—Jessamine Telephone & Telegraph Co., capital \$75,000, inceptd. by W. R. Smith, G. B. Taylor, John H. Welch.

N. C., Cape Lookout.—Navy Dept., Bureau of Yards and Docks, Washington, D. C., let contract to Donnell-Zane Co., Contr., 359 Broadway, New York, to construct radio compass-house and remodel coast guard building at \$13,865.

N. C., Poyner's Hill.—Navy Dept., Bureau of Yards and Docks, Washington, D. C., let contract to Donnell-Zane Co., Contr., 359 Broadway, New York, to construct radio compass and battery charging house, remodel coast guard building at \$11,802.

Okla., Banner.—Banner Telephone Co. inceptd by Ed. White, Thomas Muir, C. E. Smith.

Tenn., Fulton.—Fulton Rural Telephone Co., capital \$50,000, inceptd by W. M. Roach, T. E. Brady, W. A. Mason.

Tenn., Knoxville.—Western Union Telephone

Co., W. C. Nichols, Dist. Mgr., leased additional room; will remodel; costing \$25,000; reported.

Tex., Athens.—Athens Telephone Co., inceptd. by E. M. Kimbrough, Athens; C. W. Jacobs, Oscar Burton, both Tyler, Tex.

Tex., Breckenridge.—Oil Fields Telegraph & Telephone Co., capital \$60,000, inceptd. by G. O. Bateman, M. J. Lewis, R. L. Moore.

Va., Langley Fields.—Navy Dept., Bureau of Yards and Docks, Washington, D. C.; has plans for addition to radio station.

Textile Mills.

Ky., Somerset—Hosiery.—Beattie Hosiery Co., capital \$20,000, inceptd. by Alex. Beattie, Jas. Brown, Frederick Schlosser; all Philadelphia, Pa.

La., Thibodaux.—Silk.—Osignian Silk Worm Industry Corp., V. K. Osignian, G. D. McCutcheon, representatives, New Orleans, La., contemplates establishing silk plant; acquire 80-acre site; plant 150,000 to 300,000 mulberry trees; propagate silk worms.

Md., Baltimore.—Cotton Duck.—Mount Vernon-Woodberry Mills let contract to C. A. Hammet, 15 E. Fayette St., to alter and improve 6-story mill building on Railroad Ave.

N. C., Hickory.—Hosiery.—P. L. Chlinger plans organizing company to mfr. hosiery.

N. C., Mount Airy.—Yarns.—Laurel Bluff Cotton Mills, R. A. Love, increased capital from \$50,000 to \$125,000.

Va., Covington.—Silks.—Southern Textile Co., capital \$500,000, inceptd. with H. Stuegg, Prest., Weehawken, N. J.; W. C. Faulkner, Secy., Richmond.

Va., Pulaski.—Hosiery.—Paul Knitting Mills, 87 Leonard St., New York, Thos. J. Wallner, Gen. Mgr., Pulaski, Va., will install hosiery shaping and pressing machinery to increase capacity of finishing department; equipment ordered.

Va., Radford.—Hosiery.—Paul Knitting Mills, 87 Leonard St., New York, will install hosiery shaping and pressing machinery to double capacity of finishing department; equipment ordered.

Water-Works.

Fla., Jacksonville.—City Comn., John S. Bond, Chrmn., will vote March 1 on positive issue of \$100,000 bonds and tentative issue of \$100,000 for water-works. (Lately noted contemplated.)

Fla., Perry.—Town, Seward O'Quinn, Mayor, will construct 10,000 lin. ft. 6 and 8-in. water mains with valves, valve boxes and specials; bids until Feb. 24; H. S. Jaudon Engineering Co., Engr., Elberton, Ga. (See Machinery Wanted—Water-Works.)

La., Shreveport.—City will construct foundation and superstructure for pump station; J. N. Chester, Engr., Union Bank Bldg., Pittsburgh, Pa.

Miss., Pascagoula.—City will vote Feb. 14 to purchase water and light plants. Address The Mayor.

Mo., Clinton.—City will install water-works; Burns & McDonnell, Consit. Engrs., Interstate Bldg., Kansas City, Mo.

N. C., Belhaven.—Town, S. D. Smith, Clk., issued \$60,000 bonds to build water-works.

N. C., Newton.—City will install water, light and power system; issued \$14,000 bonds. Address The Mayor.

N. C., Dunn.—Town contemplates rebuilding water, power and light plant; cost \$100,000. Address The Mayor.

N. C., Reidsville.—City, J. F. Smith, Treas., issued \$100,000 bonds for water-works improvements.

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

Okla., Guymon.—City will vote on \$25,000 bonds to construct water mains; Ruchel Engineering Co., Engr., Hutchinson, Kan.

Okla., Vinita.—City will construct dam and filtration plant on Little Cabin Creek; will issue \$225,000 bonds; H. G. Olmstead & Co., Engrs., 415 Oil Exchange Bldg., Oklahoma City. (Lately noted voted \$460,000 bonds.)

S. C., Blacksburg.—City, N. W. Harden, Mayor, will vote March 20 on bonds to install water and sewer systems.

S. C., Chester.—City will probably rebuild burned station. Address The Mayor.

Tenn., Manchester.—City will construct water-works, including 60,000-gal. reservoir tank, 50-gal. per min. pump, and 20-H. P. oil engine; J. B. McCrary Engineering Co., Engr., Third Natl. Bank Bldg., Atlanta, Ga.

Tex., El Paso.—City, A. H. Johnson, Purchasing Agt., will install reinforced concrete settling basin, concrete pumphouse and pump foundation; bids opened.

Tex., Graham.—City will erect additional reservoir dam on Salt Creek; contemplates extending and enlarging water mains, also enlarging pumping plant and filtration vats to double present capacity; lay sewer mains; enlarge sewage-disposal plant; total cost \$100,000. Address The Mayor.

Tex., Harlingen.—City will install water, light and sewer systems; voted \$60,000 bonds. Address The Mayor.

Tex., Plainview.—City, C. H. Saigling, Secy., will extend and improve water and sewer system; issue \$100,000 bonds. (Previously noted to vote.)

Woodworking Plants.

Ark., Camden.—Shingles.—Fooks Lumber Co. will erect 80x100 ft. plant addition; install shingle mill with capacity of 30,000 shingles daily, also additional planing mill.

Ark., Mountain View.—Staves.—Savage Mabry & Son purchased established stove plant.

Fla., Green Cove Springs.—Crates.—Florida Farms & Industries Co., R. L. Dowling, Pres., establish crate mill, etc. (See Land Development.)

Md., Frederick.—Furniture.—Frederick Furniture Mfg. Co., Frank H. Grove, Supt., 45 E. Patrick St., has building and purchased \$5000 woodworking mch'y. to mfr. tables, wardrobes, chiffoniers, etc. (Lately noted to increase capital to \$25,000.)

Mo., Kansas City.—Cooperage.—Western Second-Hand Barrel Co. will occupy cooper shop to be erected by A. Shneiderman.

S. C., Greenville.—Furniture.—McCurry Furniture Co., capital \$5000, incptd. with H. B. McCurry, Pres.-Secy.; C. W. Moore, V.-P.-Treas.

Tex., Ballinger.—Phonographs.—E. V. Bateman and Henry Bagley interested in establishing phonograph factory.

Tex., Houston.—Barrels.—Texas Barrel Co. will probably rebuild plant burned at loss of \$100,000.

Fire Damage.

Ala., Haleyville.—Walter Purson's residence, Ala., Madrid.—Culbreth Drug Co.'s store; Tomlin's drug store; Bank of Madrid and postoffice (address the Postmaster); total loss \$50,000.

Ala., Toney.—S. B. & W. H. Bailes store; G. W. & J. W. Bailes' warehouse; loss \$17,000.

Ark., Forest City.—Forrest City Telephone Co.'s plant.

Ark., Jonesboro.—C. L. Hudson's residence, 3½ mi. from Jonesboro.

Ark., Lincoln.—Lincoln Canning Co.'s plant; loss \$35,000 to \$40,000.

Ark., Plumerville.—School building; \$20,000; D. C. Maynard, Principal.

Ark., Wynne.—Mike Drexler and N. Katz's stores; hall occupied by Knights of Pythias, Ben Hur and Independent Order of Odd Fellows; loss \$30,000.

Fla., Pensacola.—Bay Hotel, S. Palafox St.; operated by Dorothy Lane.

Ga., Fort Valley.—Silver & Macky's store; loss \$20,000.

Ga., Lincolnton.—C. D. Smalley & Son's building; loss \$15,000.

Ga., Quitman.—Clarence I. Knight's store in Nankin District.

Ga., Thomson.—E. W. Evans' residence.

Ga., Thomson.—R. E. Perry's garage; loss \$15,000.

Ga., Savannah.—E. A. Weil Co.'s store, Bryan and Abercorn Sts.; owned by Blun Estate.

Ky., Lexington.—C. F. Brower & Co.'s store was not damaged by fire as lately reported.

Ky., Stamping Ground.—Clark Roberts' residence; loss \$16,000.

La., Crowley.—Planters' Warehouse owned by W. H. Hunter and Hounter Coal Co.; loss \$25,000.

La., Houma.—Daigle's Garage building; loss \$6000.

La., New Roads.—Pointe Coupee Banner newspaper plant; loss \$5000.

Md., Glyndon.—Geo. C. Hasker's residence in Worthington Valley near Glyndon; loss \$15,000.

Md., Pikesville.—G. Mason Janney's residence at Lystra Station, occupied by C. O'Donnell Lee, Jr.; loss \$15,000.

Miss., Natchez.—Interstate Coffee Co.'s plant, loss \$10,000 to \$15,000; building owned by B. C. Geisenberger, loss \$2500.

Mo., Kansas City.—Kendig Brokerage Co.'s building, 1300-4 Union Ave.; loss \$5000.

Mo., St. Louis.—Central Young Men's Christian Assn. building, Grand and Franklin Aves.; loss \$250,000; W. A. Lippman, Chrmn. Board of Mgrs.

N. C., Greensboro.—Roberson-Strader machine shop; loss \$30,000.

N. C., Greensboro.—Roberson-Strader Box Factory; loss \$35,000.

N. C., Greensboro.—Banner Bldg., owned by Dr. C. W. Banner; loss \$25,000.

N. C., High Point.—Ed. Brown's residence; loss \$4000.

N. C., Newbern.—Catherine Kafer's 4 dwellings and 2 other residences; total loss \$20,000.

N. C., Raleigh.—Tucker Bldg., occupied by Cross & Linchan and others; loss on clothing stock and building about \$50,000.

N. C., Wilmington.—Town Creek Lumber Co.'s plant; loss \$100,000.

N. C., Winston-Salem.—Shepherd Veneer Co.'s storage shed; loss \$10,000.

Okla., Boswell.—High-school building. Address Dist. School Trustees.

Okla., Caddo.—High School; loss \$50,000. Address School Board.

Okla., Marlow.—L. T. Steele's tailor shop; J. B. McArthur's, F. L. Rankin's, McCallister & Sons', H. C. Smyth & Co.'s stores.

S. C., Chester.—Chester Water-works Station.

S. C., Chesterfield.—Farmers' Mercantile Co.'s warehouse and store; A. W. Hursey Co.'s, Hursey Bros.' and W. H. Porter's stores; loss \$50,000 to \$75,000.

S. C., Clemson College.—Clemson College commissary and kitchen; loss \$5,000.

S. C., Darlington.—A. L. Flowers' residence, occupied by J. Monroe Spears.

S. C., Sumter.—Robert Shelor's residence on Calhoun St.; loss \$6000.

S. C., Tucupau.—B. E. Champion's and J. T. Nolen's stores; loss \$12,000.

Tenn., Lebanon.—Newt Williams' residence on Hunters' Point Pike.

Tenn., Memphis.—Allston Boyd's building, 121-25 Madison Ave.; loss \$25,000.

Tex., Bonham.—C. L. Estis' residence in South Bonham.

Tex., Clarksville.—E. M. Adams' residence.

Tex., Denison.—Dr. M. M. Morrison's residence; loss \$100,000.

Tex., Denton.—T. J. Rhoady's residence.

Tex., Gainesville.—C. C. Cochran's residence, near Gainesville; loss \$6000.

Tex., Henderson.—Virgil Minor's building; loss \$15,000.

Tex., Houston.—Houston Belt & Terminal attie at Union Station; J. P. Burrus, Supt.

Tex., Houston.—Texas Barrel Co.'s plant, loss \$100,000; Union Station damaged, loss \$50,000 to \$100,000.

Tex., Humble.—W. O. Weller's cafe; Arlington Hotel, owned by J. H. Heard; Culpepper Furniture Co.'s building; total loss \$25,000.

Tex., Marshall.—Sheppard Sanitarium; loss \$15,000.

Tex., Mineral.—J. M. McMurrey and B. O. Burford's building, occupied by Mineral Mercantile Co.; Ben O'Neal's store; total loss \$12,000.

Tex., New Braunfels.—Alwin Kroeche's garage.

Tex., Osage.—German Lutheran Church, school and parsonage near Osage. Address The Pastor.

Tex., Pecos.—Cowan Bldg.; loss \$45,000; Pecos Mercantile Co.'s warehouse; loss \$15,000.

Tex., San Antonio.—King Richter Mfg. Co.'s pickle plant; loss \$14,000 to \$18,000.

Tex., Thornton.—Thornton High School. Address School Board.

Va., Free Union.—J. T. I. Wood's residence; loss \$18,000.

W. Va., Eccles.—New River Collieries Co.'s ice-manufacturing plant, entertainment hall, etc.; loss \$50,000.

BUILDING NEWS

BUILDINGS PROPOSED

Apartment-Houses.

Fla., Sarasto.—C. B. Boardman will erect apartment house at 8th St. and Coconut Ave.; eight 3-room suites; 2 stories; brick veneer.

Fla., Sarasota.—J. F. Curtis purchased 21-ft. frontage on Mango Ave. and will erect 3-story fireproof apartment building; 24 units.

N. C., Winston-Salem.—Harold Mack in is

preparing plans for \$325,000 apartment building; 167x14 ft.; 7 stories; reinforced concrete frame; terra-cotta veneer and hollow fireproof tile; ornamental terra-cotta; Barrett roof; concrete floors; wire glass; vault lights; ventilators; 2-pipe vacuum vapor heat; electric lights; Otis electric passenger and freight elevators; bids opened about March 15. (See Machinery Wanted—Building Material; Metal Lath; Terra-Cotta; MBI

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

Work; Reinforcing Steel; Cement; Lumber; Tile.)

Association and Fraternal.

Fla., De Land.—American Legion plans to erect clubhouse.

Fla., Live Oak.—Ancient Free and Accepted Masons will erect Masonic Temple at E. Duval St. and N. Ohio Ave.; 2 stories; brick and stone; cost \$50,000.

Md., Hagerstown.—Hagerstown Camp No. 1, Woodmen of the World Building Assn., 50 W. Antietam St., plans to erect \$175,000 lodge and industrial building; 80x240 ft.; 4 stories; hollow fireproof tile; slag roof; hardwood over concrete floors; metal ceilings; ornamental terra-cotta; metal doors; rolling partitions; wire glass; steel sash and trim. Address Chas. H. Bowers.

Mo., St. Louis.—Central Young Men's Christian Assn., W. A. Lippman, Chrmn. Board of Managers, will erect building to replace burned structure at loss of \$250,000.

Okla., El Reno.—El Reno Post of American Legion is considering erecting \$10,000 clubhouse.

Okla., Okmulgee. — Knights of Columbus plans to erect \$125,000 building.

Okla., Okmulgee.—Okmulgee Lodge No. 199, A. F. & A. M., plans to erect \$375,000 building for lodge, store and offices; 69½x102½ ft.; 7 stories and basement; reinforced concrete; stone, terra-cotta and brick trim; composition roof; tile and hardwood floors on concrete base; hollow fireproof tile; interior tile; ornamental terra-cotta; wire glass; mail chutes; steel sash and trim; steam heat; \$20,000; city lights; 3 electric elevators. \$30,000; J. M. Whitehead and R. E. Jennings, Architects, 6-7 Rebold Bldg.; foundation contract to be let about Feb. 1. Address Dr. T. H. Shelton, 220 McBrayer Bldg.

Tex., San Antonio.—Scottish Rite Masons, P. D. Mathis, Secy., will erect \$700,000 cathedral at Ave. E and 4th St.; probably 150x225 ft.; 2 stories and basement; steel; stone or brick facing; bids opened about June 1; Ralph H. Cameron, San Antonio, and Herbert M. Greene Co., Dallas, Asso. Architects.

Bank and Office.

Ala., Tuscaloosa.—City National Bank, R. H. Cochran, V. P., will erect \$100,000 building.

Fla., Kissimmee.—Merchants and Farmers Bank purchased Krutz block and will improve for banking offices. (Lately noted under Association and Fraternal.)

Fla., Stuart.—Stuart Bank will erect building on Osceola Ave.

Ky., Maysville.—Farmers and Traders Bank will erect building on 2d St. near Market St.

Ky., Whitesburg.—Sam Harit and Wilse Turner will construct office and business building on Main St.; cost \$12,000; contract let at once.

Mo., St. Louis. — E. O. Yancy of Yancy Vinegar Co. will remodel 4-story and basement building at 15 N. Main St. for office and warehouse building.

N. C., Greensboro.—Farmers and Mechanics & Trust Co., J. P. Sanders, Prest., will erect building at S. Elm and Fayetteville Sts.

N. C., Greensboro.—Dr. C. W. Banner will repair Banner Bldg. reported damaged by fire at loss of \$25,000; 50x90 ft.; 6 stories and basement; reinforced concrete and brick veneer; Barrett specification roof; hollow fireproof tile; plaster board; wire glass; mail chutes.

N. C., Lexington.—Col. G. F. Hankins plans to erect one or two-story addition on part of Hankins Block for offices.

N. C., Lexington.—Col. G. F. Hankins will

erect one-story addition on part of Hankins Block for offices, 25x100 ft.

Okla., Bartlesville.—Union National Bank is considering erecting \$350,000 building at 3d St. and Johnstone Ave.; 8 stories; plans not developed. (Lately noted under Association and Fraternal.)

Tenn., Burns.—Burns Bank & Trust Co. purchased site on Main St. and will erect bank building.

Tex., Fort Worth.—Mutual Home Assn. will expend \$20,000 to remodel building at 8th and Throckmorton Sts. for offices; part of main floor for banking quarters; 50x95 ft.; brick; gravel roof; wood floors, concrete in basement; metal ceilings; freight elevator; safes; steam heat; electric lights; L. B. Weinman, Archt., will supervise work. (Lately noted.)

Churches.

Ala., Huntsville.—First Baptist Church will expend \$15,000 to improve building; second-story to present Sunday-school room, 19-ft. extension to entire building, assembly room, basement and kitchen, and banquet room. Address The Pastor.

Fla., Jacksonville.—Grace Baptist Church will erect 2-story-and-basement stone building at W. Van Buren St., near Duval St.; cost \$12,000. Address The Pastor.

Fla., Jacksonville.—Christian Science Church will erect building on 1st St. between Laura St. and Boulevard; cost \$75,000 to \$85,000; site 125x98 ft.; Marsh & Saxelbye, Architects.

Ga., Atlanta.—Southern States Mission, Church of Jesus Christ of Latter-Day Saints, P. O. Box 852, is considering erecting churches at Atlanta; Danville, Va.; Greenville, S. C.; Columbia, S. C.; Mountain Lake, Va.; Jacksonville, Fla.; Memphis, Tenn.

Ky., Louisville.—Third Presbyterian Church plans to erect \$40,000 building in vicinity of 40th St. and Broadway. Address The Pastor.

Ky., Owensboro.—First Baptist Church, Rev. W. C. Boone, Pastor, 326 Griffith Ave., will erect \$160,000 building; plans include church proper with educational building adjoining for Sunday-school, women's rooms, social activities, etc.; R. H. Hunt Co., Archt., Chattanooga. (Previously noted.)

Ky., Owensboro.—St. Stephen's Catholic Church, Rev. Richard Maloney, Pastor, will erect building; \$125,000.

Miss., McComb.—Presbyterian Church, J. J. Misto, Chrmn. Comm., will erect \$75,000 building lately noted; brick and stone; oak and marble floors; plaster; lime; steam heat; electric lights; will purchase material about Feb. 1. (See Machinery Wanted — Building Material; Brick; Cement; Flooring; Heating Plant.)

Mo., Poplar Bluff.—Methodist Church, Rev. P. G. Throckmorton, Pastor, plans to erect \$100,000 building.

Mo., Springfield.—Cumberland Presbyterian Church will complete \$50,000 building, Cherry St. and National Blvd., basement of which has been constructed. Address The Pastor.

N. C., Raeford.—First Presbyterian Church opens bids Feb. 17 to erect \$75,000 building; 3 stories and basement; brick; stone trim; slate roof; electric lights; fan furnace heating and ventilating; plans at office J. W. Johnson, Chrmn., Raeford, and C. Gadsden Sayre, Archt., Anderson, S. C.

N. C., Charlotte.—Trinity Methodist Church, Rev. W. A. Jenkins, Pastor, and Tryon Street Methodist Church, D. H. Anderson, Chrmn. Comm., plan to consolidate and erect \$300,000 structure in Dilworth.

N. C., Dallas.—Methodist Church will erect \$25,000 building. Address The Pastor.

S. C., Union.—Church of the Nativity will erect parish house; cost \$8,000 to \$10,000; 8 class-rooms, primary class-room, auditorium to seat 500, gymnasium, kitchen, pantry, etc.; Wm. Douden, Archt.

Tex., Dallas.—First M. E. Church, South, will erect \$750,000 building; fireproof; slate roof; hardwood, tile and concrete floors; ornamental terra cotta; interior tile; metal doors; steam heat; bids opened in about two months. Address Herbert M. Greene Co., Archt. (Lately noted.)

Tex., Galveston.—Church Extension Board, Texas Dist. of Evangelical Lutheran Church of Missouri Synod, will erect church at 39th St. and Ave. L.; \$25,000.

Va., Dumbarton.—Baptist Church, Rev. R. A. Crabtree, pastor, will erect \$25,000 building; church auditorium to accommodate 250; Sunday-school, 250; concrete construction; slate roof; probably metal ceilings; hardwood floors; rolling partitions; steam heat; \$2,000; electric lights; H. L. Cain, Archt., 12 N. 9th St., Richmond; bids opened probably 1st February. Address P. C. Abbott, Dumbarton. (Lately noted.)

Va., Holland.—Baptist Church will erect \$25,000 brick building; Herbert L. Cain, Archt., 12 N. 9th St., Richmond.

Va., Norton.—First Baptist Church will erect building for church, Sunday-school and social service; 100x64 ft.; "L" shape; rear 40x4 ft.; brick; slate roof; concrete, pine and hardwood floors; interior tile; rolling partitions; ventilators; wire glass; steel sash and trim; steam heat; electric lights; H. L. Cain, Archt., 12 N. 9th St., Richmond; bids opened about Feb. 15. Address Rev. D. M. Simmons, pastor, Norton. (Lately noted.)

Va., Richmond.—Barton Heights Church will erect \$100,000 brick building; Herbert L. Cain, Archt., 12 N. 9th St. (Lately incorrectly noted at Va., Norfolk.)

W. Va., Keyser.—Methodist Episcopal Church, South, plans to erect building. Address The Pastor.

City and County.

Md., Baltimore.—City Yards.—Board of Awards, Wm. F. Broening, Prest., will receive bids until Feb. 2, in care of City Register, to erect two 1-story brick buildings at city yard at East and Low Sts.; specifications and blank proposal sheets from Highways Engr., Room 8 City Hall.

Mo., Kansas City.—City Hall.—City, Matt S. Shinnick, Supt. of Bldgs., is having estimates prepared by Fred. G. Gunn, 1108 Republic Bldg., for 2-story-and-basement and 3-story-and-basement addition to city hall.

Tenn., Alton Park.—Cottage and Stable.—City Commrs., Mayor J. F. Hager and others, will receive bids until Feb. 2 to erect 3-room cottage and 3-stall barn; plans and specifications from City Clerk.

Tenn., Memphis.—Jail.—County Court adopted report of bond committee requesting General Assembly to pass enabling act for election on \$500,000 bonds to build jail.

Courthouses.

Fla., Panama City.—Bay County Commrs. will erect courthouse to replace lately-noted burned structure; cost \$50,000; S. J. Welch, Archt., Pensacola.

Miss., Belzoni.—Humphreys County Commrs. will erect courthouse and jail; \$350,000; contract let about March 1; Kramer & Lindsay, Architects, 50-53 Kress Bldg., Jackson. (Previously noted.)

Tex., Crosbyton.—Pink L. Parish, County

Judge, Crosbyton, or J. G. Biffle, Archt., will receive bids until Feb. 14 to repair courthouse; plans and specifications from Archt.

Dwellings.

Ala., Tuscaloosa. — Wilber H. Ward will erect \$10,000 bungalow in Thomas Circle.

Ark., Little Rock. — W. T. Mosely will erect cottages at 2904 E. 6th St.; total cost \$250.

D. C., Washington. — Mrs. Jos. P. Tumulty will expend \$500 to repair building at 917 Kalorama Rd.

D. C., Washington. — Realty Finance & Investment Corp., Wm. E. Davis, Pres.; Thos. J. Echols, V.P. and Gen. Mgr., 313 Evans Bldg., will construct 100 six and seven-room brick dwellings; cost \$100 to \$700 each; cutler & Woodbridge, Archts., 13th St. and New York Ave. (Previously noted.)

Fla., St. Petersburg. — Provence & Green acquired 20-acre site on Euclid Blvd., between 12th and 14th Aves. N., and will develop for residential subdivision.

Ga., Augusta. — M. W. Carpenter will erect 2-story frame dwelling on 15th St. near Sunset Ave.

Ky., Louisville. — Chas. Merriwether will erect 11 frame bungalows; cost \$5000 each.

Ky., Louisville. — L. Jacobson & Co. will erect 50 frame bungalows during the year.

La., Bastrop. — Fred. M. Odum, Pres. Bastrop Realty Co., will erect 10 or more residences; bungalow type; 6 rooms.

Ky., Typo. — Mitchell-Willis Coal Co. will erect 15 miners' houses at First Creek.

Ky., Millstone. — P. W. Slomp will erect 12 miners' dwellings; contract at once.

Md., Baltimore. — Frank O. Singer, Jr., Equitable Bldg., will erect 12 2-story dwellings at 201-23 Cedar St., Westport; cost \$15,000.

Okla., Perry. — W. T. Donahue contemplates erecting residence to replace building burned at loss of \$30,000; fireproof.

Md., Baltimore. — Henry A. Knott, 2101 N. Calvert St., will erect 2½-story frame cottage at 4413 Belvidere Ave.; \$5000.

Md., Baltimore. — Cityco Realty Co., 2 E. Lexington St., will erect 12 two-story brick dwellings at McCabe and Alhambra Aves.; cost \$30,000; construction by owner.

Md., Baltimore. — Columbia Building Co., Frank H. Novak, Pres., 33rd and Tiffany Ave., will erect 80 dwellings, 400 to 600 block of East Ave.; 2 stories; brick; daylight type; front porches and 6 rooms. (Lately noted.)

Md., Baltimore. — Mrs. E. E. Jackson, Salisbury, Md., will erect residence at Guilford; Parker, Thomas & Rice, Archts., Union Trust Bldg., Baltimore. (Lately noted.)

Md., Baltimore. — City & Suburban Realty Co., Harford Rd., will erect 2 one-story bungalows on Fair Oaks Ave. near S. Beechland Ave.; cost \$5000.

N. C., Concord. — Tola D. Maness will erect residence; 2 stories; 9 rooms; brick veneer with shale brick; slate roof; hardwood floors; interior tile for baths; hot water, \$200; electric lights; contract for job or day labor; L. L. Hunter, Archt., Charlotte.

N. C., Roxboro. — M. C. Broom will erect residence; 1 story; 59x64 ft.; Stanhope & Johnson, Archt., People's Bank Bldg., Lynchburg, Va.

Okla., Henryetta. — Brakley Morgan will erect 14 five and six-room cottages.

Okla., Oklahoma City. — E. J. Ogle will erect 5000 residence at 1237 E. Park Pl.

Okla., Oklahoma City. — Jack Gill will erect 3 residences at 2326 and 2339 W. 19th St.; total cost \$5000.

Okla., Perry. — John Alderson is erecting 5 hollow-tile and stucco bungalows; cost \$5000 to \$8000; also plans to erect several smaller frame dwellings.

Okla., Perry. — Chas. Knox is erecting hollow-tile residence on N. 10th St.

Okla., Tulsa. — American Investment & Building Co., organized with capital stock of \$100,000 and will construct buildings as part of its business. Address Frank C. Thompson, Secy., 233 Cole Bldg.

S. C., Spartanburg. — M. S. Christman will erect 2 bungalows on Maple St.; cost \$7000.

S. C., Sumter. — Robt. Sheler will repair residence damaged by fire at loss of \$6000.

Tex., Dallas. — Mrs. Olive V. Conder will erect 6-room frame cottage at 796 N. Edgefield St.; cost \$5000.

Tex., El Paso. — J. E. Macon, Macon Realty Co., purchased 4000 lots in Kern Place Addition and plans to erect dwellings.

Tex., El Paso. — W. H. Garvey will erect brick bungalow at 3330 Pershing Drive; cost \$6000.

Tex., Houston. — I. Fallis will erect 2 five-room dwellings on Congress Ave.; cost \$5000.

Tex., Houston. — L. A. Krael will erect 2-story 9-room residence at 321 Morrison St.; cost about \$5000.

Tex., Houston. — W. T. Carter Lumber & Building Co. will erect 2-story 4-room dwelling on Woodrow St.; cost \$6000.

Tex., Houston. — W. J. Athens will erect 5-room cottage on Sherman St.; cost about \$5000.

Tex., Normangee. — Baptist Church, Rev. C. W. Dwyer, pastor, is erecting parsonage.

Va., Radford. — W. H. Painter, Box 128, will erect 5 to 12 or 15 dwellings of different sizes; frame and shingle; slate surface asphalt strip shingle roofs; pine and oak floors; plaster board; pipeless furnaces; electric lights; will let contract to lowest bidders for all building material, including flooring, framing, doors, windows, etc.

Tex., San Antonio. — J. D. Phillips will erect 2 dwellings on Hammond St.; 5 rooms; \$7600.

Tex., San Antonio. — A. A. Cantas will erect two 5-room residences on Grayson St.; cost \$7200.

Government and State.

Ala., Mobile. — Custom-house and Postoffice, Treasury Dept., Jas. A. Wetmore, Acting Supervising Archt., Washington, D. C., will receive bids until Feb. 17 to install women's toilet room in custom-house and postoffice; copies of specifications and drawings from office of Custodian, Mobile, or office Supervising Archt. (See Machinery Wanted—Plumbing.)

Ala., Tuscaloosa. — Home. — Alabama Home for Feeble-Minded, Dr. W. D. Partlow, Supt.; C. B. Verner, Chrmn. Bldg. Comm., will receive bids until Feb. 15 to erect first unit, to include fireproof dormitory to accommodate 150 patients, power-house and laundry combined and kitchen wing; total cost \$175,000; D. O. Whilldin, Archt., Title Guarantee Bldg., Birmingham. (Lately noted.)

Tex., El Paso. — Custom-house, etc.—Treasury Dept., Jas. A. Wetmore, Acting Supervising Archt., Washington, D. C., opened bids to remodel custom-house and courthouse; Stanley Bevan, Box 105, El Paso, lowest bidder at \$23,819. (Lately noted.)

Hospitals, Sanitariums, Etc.

Ky., Louisville. — Joseph & Joseph, Francis Bldg., are reported preparing plans for \$300,000 Baptist Hospital.

La., New Orleans. — Building Committee of

Eye, Ear, Nose and Throat Hospital, Room 471, 822 Perdido St., contemplates erecting building; plans to raise \$500,000 building and endowment fund.

Okla., Ada. — Dr. J. G. Breco is interested in erection of hospital; cost \$21,500; A. S. Ross, Archt.

Hotels.

Fla., St. Petersburg. — Victory Land Co., W. N. Shoemaker, Pres., 500 Central Ave., will erect hotel, construct golf links, clubhouse, etc., in connection with development of 2000 acres of land with frontage on Lake Maggiore and Boca Ceiga Bay.

Fla., West Palm Beach. — South Florida Hotel Corp., chartered with \$500,000 capital; Chas. Kennedy, Pres.; A. W. Garzo, V.P.; W. A. Dutch, Secy.; B. A. Maxfield, Treas.; plans to erect 10-story hotel on Flagler Blvd. (Lately noted.)

La., Slaughter. — Mrs. Willie Moore will remodel hotel.

Miscellaneous.

Fla., Clearwater. — Clubhouse. — Clearwater Country Club will erect \$25,000 clubhouse; sketches by local and nearby architects to be considered Feb. 1.

Fla., Fort Pierce. — Fair. — St. Lucie County Fair Assn. will construct wing to main building; also erect building for poultry exhibit and additional pens for livestock.

Fla., Tampa. — Home. — Trustees of Children's Home will erect building; M. Leo Elliott, Archt.

Ga., Columbia. — Clubhouse. — Harmony Club will remodel building; 50x120 ft.; concrete exterior; T. W. & E. O. Smith, Archts. (Lately noted to expend \$25,000.)

La., Baton Rouge. — Ball Park. — Standard Oil Co. will construct baseball park; grandstand to seat 3000; bleachers to accommodate 1000.

Md., Ammendale. — Retreat. — Christian Brothers will erect retreat-house; 50x100 ft.; 2 stories; frame; provision for chapel, dining room, suite for chaplain and 25 private sleeping rooms, with bath; Geo. R. Callis Jr., Archt., American Bldg., Baltimore; bids in about 30 days.

Va., Norfolk. — Clubhouse. — Lynnhaven Country Club negotiating for 133-acre site on Lynnhaven River and plans to erect clubhouse, construct 9-hole golf course, etc.

W. Va., Wheeling. — Clubhouse. — Fort Henry Club will erect clubhouse at Chapline and 14th Sts.

Railway Stations, Sheds, Etc.

Ark., Springdale. — St. Louis-San Francisco R. R., F. G. Jonah, Ch. Engr., St. Louis, will erect depot.

Tex., McAllen. — St. Louis, Brownsville & Mexico R. R., C. S. Kirkpatrick, Ch. Engr., Houston, will rearrange present facilities to accommodate new freight depot (cost about \$20,000); truck changes to cost \$2500 to \$3000. (Lately noted.)

Schools.

D. C., Washington. — District Commrs., Room 509 District Bldg., will receive bids until Jan. 29 to erect addition to School No. 170 in Burville, Division Ave. and Haynes St. N. E.; plans and specifications at office Chief Clk., Engineer Dept., Room 427 District Bldg.

Fla., Bonita Springs. — Lee County Board of Public Instruction, B. E. Tinsman, Chrmn., Fort Myers, receives bids until Feb. 9 to erect school building; plans and specifications from Francis J. Kennard, Archt., Tampa, and on file at office County Supt., Fort Myers. (Previously noted.)

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

Fla., Chokoloskee.—Lee County Board of Public Instruction, B. E. Tintman, Chrmn., Fort Myers, receives bids until Feb. 9 to erect school building; plans and specifications at office of County Supt., Fort Myers. (Previously noted.)

Fla., Tampa.—School Trustees of Special School Tax Dist. No. 4 plan election to vote on \$350,000 bonds.

Ga., Leesburg.—Lee County Board of Education will receive bids until Feb. 25 addressed to S. J. Powell, County Supt. of Schools, for \$65,000 Leesburg School Dist. bonds and \$60,000 Smithville School Dist. bonds. (Previously noted.)

Ga., Milledgeville.—Board of Education will erect grammar school on campus of Georgia Military College.

Ga., Savannah.—City defeated \$1,500,000 school bonds; T. M. Cunningham, Prest. Board of Education. (Lately noted.)

Ga., Smithville.—Lee County Board of Education will receive bids until Feb. 25 addressed to S. J. Powell, County Supt. of Schools, Leesburg, for \$60,000 school district bonds. (See Ga., Leesburg.)

La., Napoleonville.—Assumption Parish School Board, S. A. Alleman, Supt., will erect school.

La., Platenville.—Assumption Parish School Board, S. A. Alleman, Supt., Napoleonville, will erect school.

La., St. Martinville.—St. Martin Parish voted \$300,000 bonds to erect 4 high schools.

Md., Westminster.—Western Maryland College, Dr. A. Norman Ward, Prest., will erect \$100,000 stadium; oval shape; iron and steel. (Previously noted.)

N. C., Asheville.—City, W. L. Brooker, Supt. of Schools, will vote soon on \$50,000 bonds to erect 2-story 14-room school in West Asheville, 14-room building in north section, 12-room school in south section, 12-room school at Catholic Hill for negroes, 8-room addition to Park Avenue School, 4-room addition to Ashland Avenue School and improvements to present structures; W. H. Lord, Const. Archt. (Lately noted.)

N. C., Charlotte.—City School Board, Plummer Stewart, Chrmn., plans to erect \$10,000 school in North Charlotte.

N. C., Fairmont.—School Board receives bids until Feb. 16 to erect school building; 2 stories and basement; brick; sandstone trim; composition roof; electric lights; fan furnace heat and ventilating; ventilated plumbing; plans at office of Geo. H. Cole, Chrmn., Fairmont, and C. Gadsden, Archt., Anderson, S. C.; \$100,000 bond issue to be sold Feb. 22. (Bonds previously noted voted.)

N. C., Greensboro.—City voted \$1,000,000 bonds to purchase sites, erect, remodel and equip schools; J. Norman Wills, Chrmn. Board of Education. (Lately noted.)

N. C., High Point.—Guilford County Board of Commrs., W. C. Tucker, Chrmn., Greensboro, will erect Central High School; \$600,000 bonds voted. (Lately noted.)

N. C., Kernersville.—Kernersville High School Dist. Trustees will enlarge building. Address Dr. Justice, Secy. School Board.

N. C., New Bern.—City, F. T. Patterson, Clk., will receive bids until Feb. 1 on \$150,000 bonds to purchase sites, erect and equip fireproof schools.

N. C., Oxford.—Oxford Graded School Dist. voted \$75,000 bonds to supplement \$50,000; will erect high school on Williamsboro St. and other structures. Address Dist. School Trustees.

N. C., Smithfield.—Smithfield School Dist. votes March 2 on bonds to erect high school; also colored school. Address Dist. School Trustees.

Okla., Caddo.—School Board will rebuild high school noted burned at loss of \$50,000.

Okla., Muskogee.—Board of Education, R.

J. Tighe, Supt., will erect annex to Washington School; 2 stories; 32x50 ft.; 4 rooms; first floor for gymnasium and auditorium; 2 classrooms on second floor; cost \$15,000.

S. C., Clemson College.—Clemson College will rebuild kitchen and commissary noted burned at loss of \$25,000.

Tex., Fort Worth.—Board of School Trustees will receive bids until Jan. 28 to erect 16-room school at Riverside; cost \$50,000. (Lately noted.)

Tex., Plainview.—City School Board, W. E. Patty, Supt., will erect school in Seth Ward addition; also several rooms and auditorium to 3 buildings; total cost \$125,000.

Tex., Ranger.—Ranger School Dist. Trustees plan to issue \$250,000 bonds.

Tex., Snyder.—Board of Education, Nealy Squires, Supt., plans to erect high school.

Tex., Thornton.—School Board will erect high school to replace burned structure.

Tex., Wichita Falls.—University Club, A. C. Easley, Prest., plans to establish junior college; cost \$100,000.

Va., Greenwood.—School Board will erect \$50,000 high school; brick; 10 classrooms and auditorium.

Va., Martinsville.—Town Council, A. S. Gravelly, Clk., voted \$250,000 bonds to erect high school and construct streets; school, 50x100 ft.; hollow fireproof tile; brick walls; wood partitions; tar and gravel roof; ornamental terra cotta; concrete and wood floors; plaster board; steel sash and trim; rolling partitions; warm air heat; ventilators; electric lights; W. C. Northup, Archt., Winston-Salem, N. C. (Lately noted.)

Va., Norfolk.—City School Board, Richard A. Dobbie, Div. Supt., Bankers' Trust Bldg., will receive bids until Feb. 3 to erect 12-room annex to James Madison School at Lambert's Point; brick; wood floors; separate bids for heating and ventilating; plans and specifications at office Neff & Thompson, Archts., Seaboard Bank Bldg.

Va., Salem.—Elizabeth College plans to erect \$45,000 dormitory.

W. Va., Bridgeport.—Harrison County Board of Education, Clarksburg, is considering bond issue to erect high school.

W. Va., Lewisburg.—Lewisburg Seminary Board of Directors will rebuild structure lately noted burned; cost \$75,000.

W. Va., Walkersville.—Board of Education, District of Collins Settlement, receives bids until Feb. 11, addressed to Geo. W. Blair, Secy., Crawford, to erect high school; 61x36 ft.; 2 stories and basement; brick, stone and hollow tile; built-up roof; hot-air heat; bids opened at office of Citizens Bank, Weston; plumbing, heating and wiring to be let separately; plans at office Albert Breternitz, Archt., Clarksburg; also opens bids Feb. 11 for \$50,000 folks. (Previously noted.)

Stores.

Ala., White Plains.—Andrew H. Little will erect store building and warehouse to replace lately-noted burned structure; 24x54 ft.

Ark., Fort Smith.—W. A. Johnson will expend \$8000 to install plate-glass store front on Garrison Ave.

Ark., Texarkana.—A. B. Poe Shoe Co., H. H. Watson, Mgr., will remodel building.

D. C., Washington.—R. F. Saul will erect 3 business buildings on I St. between 14th and 15th Sts.; Geo. N. Ray, Archt., 1147 Connecticut Ave. N. W.

Ky., Sergeant.—Apex Coal Co. will erect store building.

La., Lake Charles.—Paul J. Barbe will erect 2 brick stores on Lyons St.; 25x69 ft. each; plate-glass fronts; plastered interior; composition roof; Lake Charles Hat Co. to occupy one.

Miss., Darbut.—D. F. Lampton & Co. will erect store building; 39x70 ft.; frame; wood

floors; galvanized roof; safes; bids opened Jan. 24. (Lately noted.)

N. C., Charlotte.—Samuel White & Sons will erect 1-story addition to and remodel 2-story brick building at 208-10 E. Trade St.

Okla., Okmulgee.—C. W. Colvin will erect \$40,000 store building.

Okla., Okmulgee.—Frank Charon, \$16 X Okmulgee Ave., will erect \$65,000 building for stores and offices; 28x50 ft.; 2 stories; steel and brick; composition roof; concrete and hardwood floors; hollow tile; wire glass; steel sash and trim; heaters for natural gas; city lights; subcontracts only to be let as work progresses.

Okla., Perry.—Christopher & Newton are building furniture warehouse annex to store; also contemplate additional frontage to retail store and probably erect \$40,000 building adjacent.

Tenn., Knoxville.—Sam Caldwell Co. will remodel building at Gay St. and Vine Ave.; install show windows; provide side entrance with glass arcade; decorate interior, etc.

Tex., Dallas.—M. L. & J. Genara will erect 1-story brick store at 304-6 S. Houston St.; cost \$8000.

Tex., Dallas.—W. A. Kemp will erect 1-story brick store, 3109 Regan St.; cost \$600.

Va., Richmond.—Davis Bros. will erect brick store and flat on West Ave. between Stewart and Front Sts.; cost \$10,000.

W. Va., Vivian.—Peerless Coal & Coke Co. will erect commissary to replace structure lately noted burned at loss of \$65,000; brick and concrete; Alex. B. Mahood, Archt., Bluefield.

Theaters.

Ala., Mobile.—Dauphine Theater will improve building.

Ky., Marlon.—Chas. L. Cassady will erect arcade building; theater to seat 600, and stores on first floor; offices above; cost \$18,000; 45x127 ft.; brick and concrete; asbestos roof; concrete, tile and hardwood floors; hollow fireproof tile; metal ceilings and doors; ornamental terra-cotta; wire glass; vault lights; ventilators; steel sash and trim; hot-water heat; electric lights; construction by owner; separate bids Feb. 1.

Md., Easton.—General Amusement Co., Henry P. Turner, Prest., will erect theater at Dover and Harrison Sts.; cost \$50,000.

Mo., Kansas City.—M. J. Barry, Secy., Kansas City Gas Co., will rebuild Warwick Theater, 327 Main St.; cost \$75,000.

Tex., Bonham.—Sparger & Peters prepared plans for \$60,000 theater, S. Main St. and 3d St.

Tex., Ennis.—John M. Sayeg will erect \$60,000 theater; 50x115 ft.; brick, hollow fireproof tile and concrete; gravel roof; tile and concrete floors; interior tile; metal doors; wire glass; plaster board; steel sash and trim; ventilators; gas and hot-air heat; electric lights; bids opened about Feb. 1; Van Horn & Co., Archts. (Lately noted.)

W. Va., Fairmont.—Arch M. Burt will improve motion-picture theater on Market St.; cost \$7000.

Warehouses.

Ala., Mobile.—Adams Machinery & Supply Co. is erecting warehouse at Government and Claiborne Sts.

Mo., Kansas City.—Western Second Hand Barrel Co. purchased site on new Locust St. traffic way and plans to erect 1-story warehouse and cooper shop.

Tex., Houston.—Sternberg-Mass Co. will erect 3-story brick warehouse at Wood and Walnut Sts.; 80x100 ft.; \$44,000.

Va., Lynchburg.—General Storage Corp. chartered; G. O. Lee, Prest.; J. B. Strachan, Jr., Secy.

BUILDING CONTRACTS AWARDED

Association and Fraternal.

Gas. East Point.—Masonic Order will erect 3-story temple; Daniell & Beutell, Architects. Peters Bldg., Atlanta; D. A. McDuffy, Contr., East Point; construction by day labor.

Bank and Office.

Ala., Birmingham.—Jemison Real Estate Insurance Co., Robt. Jemison, Jr., Pres., will erect \$90,000 building for offices of Jemison & Co., Inc., and Jemison-Seibels Insurance Agency, 50x100 ft.; 2 stories and basement; foundation for 10 stories; reinforced concrete and limestone; composition roof; concrete and tile floors; Warren & Knight, Architects; Smallman-Brice Construction Co., Contrs. Address Jemison & Co., Inc., 211 N. 20th St. (Previously noted.)

N. C., Huntersville.—Bank of Huntersville, Dr. M. C. Hunter, Pres., will erect \$10,000 building; tapestry brick; tile floors; stone trim; steel ceiling; R. N. Hunter, Contr., Charlotte. (Lately noted.)

Churches.

N. C., Charlotte.—Second Presbyterian Church, J. M. Harry, Chrmn. Bldg. Comm., will erect \$65,000 addition for Sunday-school; 3 stories; 100x13 ft.; brick; slate roof; rift-pine floors; rolling partitions; steam-heat contract not let; also expend \$5000 to remodel present Sunday-school building for addition to church auditorium; L. L. Hunter, Archt.; J. A. Jones Contracting Co., Contr.

N. C., Charlotte.—Calvary Methodist Church, Rev. J. A. Sharp, Pastor, will erect building in 1200 block of S. 9th St.; auditorium 50x50 ft., Sunday-school annex 30x60 ft., basement, gymnasium and kitchen; \$30,000; 2 stories; brick veneer and concrete; asbestos shingle roof; rift-pine floors; hot-air heat; \$800; electric lights; \$450; F. L. Bonfoey, Archt.; R. F. Rankin, Contr., Latta Arcade. (Lately noted.)

N. C., Winston-Salem.—Moravian Church will erect Sunday-school building at Friedberg; cost \$7000; 31x36 ft.; 2 stories and basement; concrete and wood; metal shingle roof; concrete and rift-pine floors; rolling partitions; R. A. Faw, Archt.; O. C. Perryman, Contr., both Winston-Salem.

S. C., Greer.—Presbyterian Church, Dr. A. G. Wardlaw, Pastor, will erect \$25,000 building on Main St.; Greek style; J. C. Cunningham, Contr.

Courthouses.

Gas. Pearson.—Atkinson County, David Wethers, Chrmn., is erecting \$125,000 courthouse, 50x58 ft.; fireproof; slate roof; concrete, hardwood, tile and marble floors; direct steam heat; electric lights; hollow fireproof tile; interior tile; metal doors; vaults; wire glass; ventilators steel sash and trim J. J. Baldwin, Archt., Anderson, S. C. Address Holley Construction Co., Contr., Augusta, Ga. (Previously noted.)

N. C., Smithfield.—Johnston County will erect \$360,000 courthouse and jail; 118½x80½ ft.; granite, limestone and concrete; Barrett specification roof; composition, tile, marble, concrete and hardwood floors; hollow fireproof tile; interior tile; ornamental terra-

cotta; metal doors; vaults; wire glass; ventilators; steel sash and trim; steam heat; electric lights; Joe W. Stout & Co., Inc., Contrs., Sanford, N. C. Address Harry Barton, Archt., Greensboro. (Previously noted.)

W. Va., Romney.—Hampshire County Court is erecting \$110,000 courthouse; 52x58 ft.; brick and concrete; built up roof over concrete; cork tile floors on concrete; metal cornice; interior tile; metal doors; vaults; wire glass; vault lights; interior wood trim; steel sash and trim; steam heat, \$500; electric lights, \$1500; Holmboe & Pogue, Architects, Clarksburg. Address John S. Vandegrift, Contr., Cumberland, Md., and Romney. (Previously noted.)

Dwellings.

Ala., Birmingham.—Dr. A. L. Gaston will erect \$20,000 residence at Ensley Ave. and 28th St.; tile and brick veneer; R. A. Davis, Contr.

Md., Baltimore.—Wm. C. Reinecke will erect 2½-story brick dwelling on Belair Rd. nr. Idaho Ave.; 26.8x28.8 ft.; slate roof; cost \$6000; I. L. Bowman, Archt. and Contr., Belair, Md.

Md., Baltimore.—Harry Shapiro, 27 W. Baltimore St., will erect residence, Hilton St. and Springdale Ave.; 2 stories and attic; brick; 44.6x37 ft.; slate roof; cost \$9000; Fredk. E. Beall, Archt., 1335 N. Gilmore St.; A. Singer Co., Contr. (Previously noted.)

Md., Baltimore.—Wm. A. Hoerr, 5013 Harford Ave., will erect \$3600 cottage; 28x28 ft.; frame; slate roof; yellow-pine floors; hot-water heat; electric lights; Ellworth Miller, Contr., Lauraville. (Mr. Miller lately noted to erect residence.)

Md., Baltimore.—John W. Styne, West Forest Park, will erect 2 frame cottages on Norwood Ave. west of Woodbine Ave.; 2 stories; 28x28 ft.; slate roofs; yellow-pine and oak floors; steam heat; electric lights; Walter E. Hildey, Contr., West Forest Park. (Lately noted.)

N. C., Winston-Salem.—Annie Pannell will erect two 5-room dwellings on W. 4th St. extension at Taylor and Carter Sts.; bungalow type; W. C. Humphreys, Archt.; C. B. Freeman, Contr.

S. C., Greenville.—Mr. McKissick will erect \$7000 winter residence at Earle and Rutherford Sts.; 24x66 ft.; 2 stories; J. R. Owens, Contr.

Tex., Brenham.—Dr. O. F. Schoenvogel will erect residence on W. Alamo Ave.; 8 rooms; frame; shingle roof; pine floors; gas and stove heat; electric lights; \$3400; J. R. Nix, Archt. and Contr. Address owner. (Lately noted.)

Tex., Dallas.—Texas Lumber & Construction Co. organized with \$1,000,000 capital; J. C. Kelly, Pres., Rusk; plans to erect 1000 dwellings where needed in Texas; W. H. Goodnight, Contr., Dallas.

Government and State.

Fla., St. Petersburg.—Dormitory.—W. T. Hadlow, 15 Baldwin Bldg., Jacksonville, is reported to have contract to erect dormitory for Government; specification No. 4319.

Miscellaneous.

Miss., Hazelhurst.—Resort.—Browns Wells Health Resort Co., Bishop C. Perkins, New Orleans, owner, is reported to erect 8 buildings; contracts let.

N. C., Jamestown.—Clubhouse.—Old Hickory Club will erect clubhouse on Guilford College Rd. near Jamestown; 11 rooms; stone and logs; shingle roof; hardwood floors; running water; electric lights—\$15,000; Arthur Brown, Contr., High Point. (Lately noted.)

Tex., Dallas.—Home.—Buckner Orphans' Home will erect \$75,000 dormitory on Dallas Pike; colonial design; 2 stories; 51x91 ft.; reinforced concrete and pressed brick; brown-stone finish and cornices; concrete and tile roof; terrazzo floors; accommodate 50 children, 4 to a room; bath for each room; individual lockers; steam-heating plant in basement; C. W. Bulger & Son, Architects; Hickey & Montgomery, Contrs.

Schools.

S. C., Rock Hill.—Rock Hill Dist. School Trustees will erect Ebenezer Ave. grammar school; 7 classrooms, auditorium, library, principal's office and teachers' restroom; cost \$55,500; brick; composition roof; wood floors; steam heat (not let); electric lighting; A. D. Gilchrist, Archt.; W. M. Padgett, Contr.; R. C. Burts, Supt. (Lately noted.)

Stores.

D. C., Washington.—N. L. Saulsbury Co., 721 13th St., will remodel 4-story building; 25x75 ft.; brick; cement front; tin roof; wood floors; electric lights; Arthur B. Heaton, Archt., 1410 H St.; D. E. Nichol, Contr., Real Estate Trust Bldg.

Fla., Fort Lauderdale.—H. C. Crim will erect 2-story building; first floor, 50x139 ft.; second, 50x105 ft.; \$15,000; Dennison tile; composition roof; concrete and wood floors; interior tile; city lights; first floor for business rooms; second for apartments and offices. Address S. L. Drake, Contr. (Lately noted.)

Md., Baltimore.—Samuel Perego, 703 Whitlock St., will erect 1-story brick stores, 901-3 Whitlock St.; 45x30 ft.; slag roofs; cost \$6500; David L. Pritzler, Archt.; S. Pecher, Contr.

Okla., Okmulgee.—McCracken-Mitchell Hardware Co. will erect \$60,000 store and office building; 56x140 ft.; 2 stories; semi fireproof; hollow fireproof tile; ornamental terra-cotta; metal ceilings and doors; composition roof; cement and wood floors; steam heat; electric lights; freight elevator; Smith, Rea, Lovitt & Senter, Architects, Parkinsion Bldg.; contract let. (Lately noted.)

Tex., Dallas.—E. W. Rose, City Natl. Bank, will expend \$10,000 to improve building for D. L. Whittle Music Co.; ornamental terra-cotta; H. B. Thompson, Archt.; Walter Whitley, Contr. (Lately noted.)

Tex., Graham.—Mrs. N. F. McCain will erect 2-story brick store and office building; 26x150 ft.; contract let.

Warehouses.

Tex., Houston.—Anderson-Clayton Co. will erect \$30,000 warehouse at north end of West St., 1 story; contract let.

MACHINERY, PROPOSALS AND SUPPLIES WANTED

Asphalt.—See Paving Materials.

Automobile Accessories.—J. S. Goepfinger, 907 W. 13th St., Oklahoma City, Okla.—To correspond with brokers and wholesale companies in Detroit, Mich., for automobile accessories.

Bathroom Fixtures.—Walter Waldin, Box 598, Miami, Fla.—Names and addresses mfrs. of bathroom outfits.

Boiler.—Sparrow & Gravely Tobacco Co., Martinsville, Va.—100 H. P. second-hand boiler.

Boilers.—Dwight P. Robinson Co., 61 Broadway, New York.—Boilers for sawmill.

Boilers.—Thomasboro Canning Co., J. E. Thomas, Pres.-Mgr., R. F. D. No. 5, Thomasboro, N. C.—Bids until March 1 to install 1 boiler and 4 can boilers for plant

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with daily output of 2000 cans vegetables.

Boring Machines.—John G. Duncan Co., 101 E. Jackson St., Knoxville, Tenn.—Prices on second-hand or rebuilt boring machines for boring telegraph pole crossarms.

Bottling Equipment.—Guarantee Finance Co., Inc., Roanoke, Va.—Fillers, crowners, soakers, carbonaters, crates, bottles, etc.

Bottling Machine, etc.—Liverade Medicine Co., S. J. Barnett, Gen. Mgr., Fulton, Ky.—Prices on small bottling and labeling machines.

Brick (Concrete) Machine.—John G. Duncan Co., 101 E. Jackson St., Knoxville, Tenn. Catalogs and jobbers' prices on concrete brick machinery.

Brick.—See Building Material.

Brick (Paving).—See Paving Materials.

Bridge Construction.—Rapides Parish Police Jury, J. F. Ball, Prest., Alexandria, La. Bids until Feb. 8 to build bridges and culverts on portion River road, extending from Powell's lane to Boyce, 10½ mi.; also build culverts on 9 mi. Glenmora-Westport highway; plans, etc., with Ira W. Sylvester, Parish Engr.

Bridge Construction.—South Carolina State Highway Dept., Columbia, S. C.—Bids until Feb. 18 to build bridge across Savannah River; Chas. W. Moorefield, State Highway Engr.

Bridge Construction.—North Carolina State Highway Comsn., Div. Office, Greensboro, N. C.—Bids until Jan. 25 to build bridges and culverts on Project 112, in Caswell County; 234,450 lbs. reinforcing steel; Federal-aid Project 112; plans from Div. Engr., Greensboro, and Bridge Engr., Raleigh.

Building Material.—M. A. Long Co., 1523 Munsey Bldg., Baltimore, Md.—Estimates on building material and subbids for erection of high-school building at Laurel, Del.; plans and specifications at office of company.

Building Material.—Presbyterian Church, J. J. Misto, Chrmn. Comm., McComb, Miss.—Bids until Feb. 1 on brick, stone, cement, plaster and lime for \$75,000 building.

Building Material.—Harold Macklin, Winston-Salem, N. C.—Prices on metal lath, terra-cotta, millwork, reinforcing steel, lime, cement, plaster, lumber (form work), hollow tile, promenade tile, etc.

Building Materials.—J. R. Mullins, Treas. Minors Elkhorn Coal Co., Leander, Ky.—Building material of all kinds.

Bumpers.—John G. Duncan Co., 101 E. Jackson St., Knoxville, Tenn.—Dealers' prices on rebuilt or second-hand improved spring and air sawmill carriage bumpers; prefer air bumper.

Canning Equipment.—Thomasboro Canning Co., J. E. Thomas, Prest.-Mgr., R. F. D. No. 5, Thomasboro, N. C.—Bids until March 1 to install filler and sieve with equipment for canning vegetables; daily output 2000 cans.

Cars (Dump).—C. E. Hillger, Contr., Jacksonville, Fla.—Prices on dump cars, 1-yd. narrow gauge for concrete.

Cars.—Southern Brick Plant, M. H. Copenhaver, Prest., Mahoney Bldg., Bristol, Tenn. 30 or more brick cars, one or two 1-yd. end-dump cars and two 2-yd. end or side-dump cars; second-hand considered.

Casing.—A. H. Burg, Lakin, Kans.—Prices and specifications on 12 well casings, 16 in. x 28 ft. length, 18 ft. of which is perforated for irrigation system.

Cement.—See Building Material.

Cement.—Harold Macklin, Winston-Salem, N. C.—Prices on cement. (See Building Material.)

Cement.—Florida Paint & Cement Co.,

K. R. Paderick, Mgr., 302 Hill Bldg., Jacksonville, Fla.—Asbestos fiber cement.

Coaches (Passenger).—R. E. L. C. Ries, 711 Union St., New Orleans, La.—Two or three passenger coaches, between 1000 and 1200 tons, for Interurban Line.

Coaches (Passenger).—Pennsylvania Equipment Co., 1420 Chestnut St., Philadelphia, Pa.—6 second-hand passenger coaches to be used in workman's train.

Crusher, etc.—T. J. Lane Equipment Co., Springfield, O.—No. 7½ Austin gyratory crusher, with 50-ft. elevator and screen.

Curb (Stone).—See Paving Materials.

Cutting Machine.—Concrete Steel Bridge Co., Clarksburg, W. Va.—Electric-cutting machine, suitable for cutting structural steel; prefer machine more or less portable.

Drag Line.—Uvalde Rock Asphalt Co., 1114 Central Trust Bldg., San Antonio, Tex.—Drag line to handle 2-yd. bucket on 90-ft. boom.

Engine.—Geo. H. Koepp, Ramsey, La.—60 H. P. engine.

Engines.—H. H. Carr, Holly Hill, Fla.—New or second-hand oil-burning engines, 5, 7 and 15 H. P.

Engine.—T. J. Lane Equipment Co., Springfield, O.—300 H. P. vertical oil engine; good condition; immediate shipment.

Engines.—John G. Duncan Co., 101 E. Jackson St., Knoxville, Tenn.—Jobbers' prices on double-cylinder double-drum steam-hoisting engines without boiler; about 7½x9 cylinder.

Excavator.—C. E. Hillger, Contr., Jacksonville, Fla.—Prices on caterpillar excavator, small ½-yd. bucket.

Fan.—Southern Brick Plant, M. H. Copenhaver, Prest., Mahoney Bldg., Bristol, Tenn. Induction drykiln fan; second-hand considered.

Fans.—Jellico Brick Corp., Newcomb, Tenn. Two 6-ft. Sirocco fans in good condition.

Flooring.—Presbyterian Church, J. J. Misto, Chrmn. Comm., McComb, Miss.—Bids until Feb. 1 for marble flooring.

Gas Producers.—F. William Stocker, Hoboken, N. J.—Two 300 H. P. each Smith gas producers, complete, with fittings.

Glassware.—Bernard E. Loveman, care of D. R. Loveman Co., Chattanooga, Tenn.—Names and addresses mfrs. of glassware for department stores.

Gravel.—See Paving Materials.

Heating Plant.—Presbyterian Church, J. J. Misto, Chrmn. Comm., McComb, Miss.—Bids until Feb. 1 for steam-heating plant for \$75,000 building.

Hose (Fire).—District Commrs., Room 509 District Bldg., Washington, D. C.—Bids until Feb. 14 to furnish and deliver 12,000 ft. of 2½-in. cotton-covered rubber-lined fire hose; specifications with Purchasing Officer, Room 320 District Bldg.

Ice Machines.—Bernard E. Loveman, care of D. R. Loveman Co., Chattanooga, Tenn.—Names and addresses mfrs. of small ice machines suitable for cooling drinking water in medium and large buildings.

Labeling Machine.—See Bottling Machine, etc.

Laths (Metal).—Walter Waldin, Box 598 Miami, Fla.—Names and addresses mfrs. of herringbone metal laths suitable for stucco work.

Lighting Fixtures.—Bernard E. Loveman, care of D. R. Loveman Co., Chattanooga, Tenn.—Names and addresses mfrs. of lighting fixtures for department store.

Limestone Dust.—See Paving Materials.

Locomotives.—R. P. Johnson, Wythesville, Va.—Dealers' prices on two 36 in. gauge 20-

ton steam locomotives; one to be geared, other slide-rod type; good second-hand condition.

Locomotive.—Uvalde Rock Asphalt Co., 1114 Central Trust Bldg., San Antonio, Tex.—60 or 70 ton standard gauge Climax or buy locomotive; good condition.

Lumber.—Harold Macklin, Winston-Salem, N. C.—Prices on lumber. (See Building Material.)

Lumber, etc.—Fort Bend County Commrs., Richmond, Tex.—Bids until Jan. 24 to furnish: 31,710 ft. lumber; 140 cedar posts or piling, 12 ft. long; 35 timber culverts; G. D. Myers, County Judge; Gurley & Gurley, Engrs.

Lumber.—Duval County Commrs., Chas. A. Clark, Chrmn., Jacksonville, Fla.—Bids until Feb. 1 for furnishing 100,000 B. 2x8 yellow pine dressed lumber of merchantable grade; delivered at Ortega bridge over McGirts Creek.

Metal Lath.—Harold Macklin, Winston-Salem, N. C.—Prices on metal lath. (See Building Material.)

Millwork.—Harold Macklin, Winston-Salem, N. C.—Prices on millwork. (See Building Material.)

Minerals.—Florida Paint & Cement Co., K. R. Paderick, Mgr., 302 Hill Bldg., Jacksonville, Fla.—Red and green minerals to color cement.

Mining Machinery.—Red Ash Fuel Sales Corp., Raven, Va.—Mining mch. for 40-ton capacity mine.

Mining Machinery.—J. R. Charlton, Mgr. West Virginia Eagle Coal Co., Bonair, W. Va.—Mining machinery.

Mining Machinery.—J. R. Mullins, Treas. Minors Elkhorn Coal Co., Leander, Ky.—Mining machinery; electric power.

Motors.—Dwight P. Robinson Co., 61 Broadway, New York.—Motors for sawmill.

Motor.—Doyle Publishing Co., Keyser, W. Va.—1 or 2 H. P. motor, alternating current, 3-phase, 220 volts, 60-cycle; new or second-hand.

Motors.—McEwen Lumber Co., Box 1108, Norfolk, Va.—Motors for electric drive.

Motor.—A. H. Burg, Lakin, Kans.—Prices and specifications on 50 H. P. motor.

Office Fixtures.—R. E. Kurtz, Moore Haven, Fla.—Prices on safes, vaults, hose-leaf abstract forms and other office fixtures.

Motor (Water).—Jellico Brick Corp., Newcomb, Tenn.—25 to 35 H. P. water motor in good condition.

Oils.—Florida Paint & Cement Co., K. R. Paderick, Mgr., 302 Hill Bldg., Jacksonville, Fla.—Low-grade oils.

Paints.—Florida Paint & Cement Co., K. R. Paderick, Mgr., 302 Hill Bldg., Jacksonville, Fla.—Low-grade paints.

Pan.—Southern Brick Plant, M. H. Copenhaver, Prest., Mahoney Bldg., Bristol, Tenn. Dry pan; American preferred; second-hand considered.

Paving.—City of Beeville, Tex.—Bids until Jan. 25 to construct 14,340 sq. yds. paving; 6-in. reinforced concrete base, with 1-in. asphalt topping; plans, etc., with Roy Fenner, City Engr.

Paving.—City of Washington, N. C.—Bids until Feb. 10 to construct 65,500 sq. yds. vitrified brick or sheet-asphalt paving; 35,000 lin. ft. stone curb; 11,500 cu. yds. grading; 14,300 sq. yds. cement sidewalks; storm sewers; P. C. Painter, City Engr.

Paving Materials.—City of Washington, N. C.—Prices on paving materials, including stone and gravel for concrete; binder stone and limestone dust for asphalt; asphalt; pav-

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

ing brick; stone curb 16 in. deep x 5 in., also 5 in. x 6 in.

Paving.—City, E. A. Beck, City Mgr., Lynchburg, Va.—Bids until Jan. 29 to pave Church St.; 12,000 yds. brick, sheet asphalt or concrete; B. A. Bennett, Engr.

Paving.—City, H. B. Rudisill, Mayor, Anniston, Ala.—Bids about Feb. 25 to pave 12 mi. streets with asphaltic concrete, bitulithic or brick on reconstructed base; cost \$600,000; Robert L. Totten, Consult. Engr., Birmingham, Alabama.

Paving.—Town, Aulay McAulay, Clk., Perry, Fla.—Bids until Feb. 24 to construct 25,000 sq. yds. street paving, etc.; plans, etc., with City Clk Perry and H. S. Jaudon Engineering Co., Engr., Elberton, Ga.

Pipe (Smoking) Machinery.—Coca-Cola Bottling Co., F. L. Johnson, Mgr., Statesville, S. C.—Names and addresses mfrs. of machines for making smoking pipes from fig, briar and apple wood.

Pipe.—Edgar Tufts, care of Lees-Meltre Institute, Banner Elk, N. C.—1000 ft. of 26, 28 and 30-in. wood stave and metal pipe to carry water from dam to power-house that has a 50-ft. head; second-hand if in good condition.

Pipe.—Duval County Commrs., Chas. A. Clark, Chrmn., Jacksonville, Fla.—Bids until Feb. 1 to furnish 15 pieces galvanized iron corrugated culvert pipe.

Pipe.—A. H. Burg, Lakin, Kans.—Prices and specifications on 650 ft. of riveted 14-gauge galvanized and coated pipe, 7 to 12 in. diam., for irrigation plant.

Pipe (Water).—Jellico Brick Corp., Newcomb, Tenn.—700 ft. of 6-in. steel water pipe in good condition.

Rails.—C. E. Hilliger, Contr., Jacksonville, Fla.—Prices on 2000-ft. light rails.

Planing Mill Equipment.—McEwen Lumber Co., Box 1408, Norfolk, Va.—Planing mill equipment, including double surfacer, band saw, double trimmer, edger, cutoff filing-room equipment and dust-collecting system.

Plumbing.—Jas. A. Wetmore, Acting Supervising Archt., Washington, D. C.—Bids until Feb. 17 to install women's toilet-room in custom-house and postoffice, Mobile, Ala.; copies of specifications and drawings from office of Custodian, Mobile, or office Superintending Archt.

Pulverizer.—G. L. Holden, Box 43, Cartersville, Ga.—Prices on second-hand Raymond No. 0 automatic pulverizer with air separator, exhaust fan and cyclone collector; state condition, etc.

Pump.—A. H. Burg, Lakin, Kans.—Prices and specifications on horizontal centrifugal pump with 12-in. suction.

Rails.—J. R. Mullins, Treas. Minors Elk-lorn Coal Co., Leander, Ky.—Steel rails of all kinds required in mines.

Rails, etc.—R. E. L. C. Ries, 711 Union St., New Orleans, La.—70-lb. steel rails to pass flint inspection, spikes, bolts, bars, turnouts, switches, etc., without poles or ties, for 12 mi. interurban line.

Railway Equipment.—R. E. L. C. Ries, 711 Union St., New Orleans, La.—To correspond with mfrs. of and dealers in equipment for an interurban line of 12 mi.

Reinforcing Steel.—Harold Macklin, Winston-Salem, N. C.—Prices on reinforcing steel. (See Building Material.)

Refrigeration Machine.—Andy Jacobs, Leitchfield, Ky.—Three-ton or larger second-hand refrigeration machine; good condition; York preferred.

Road Construction.—Scott County Commrs., Dist. No. 1, Forest, Miss.—Will invite bids on roads; \$110,000.

Road Construction.—Campbell County Commrs., Newport, Ky.—Bids about April on 2 mi. water-bound macadam road; \$12,000 available; Roland R. Pyne, County Engr.

Road Construction.—Kanawha County Commrs., S. E. Childress, Prest., Charleston, W. Va.—Bids until Feb. 12 to grade roads in Elk Dist.; 20,000 ft.; culverts, bridges, etc.; plans, etc., with F. G. Burdett, County Road Engr.

Road Construction.—Coleman County, L. G. Mathews, County Judge, Coleman, Tex.—Bids until Jan. 31 to construct 6.78 mi. gravel road, concrete drainage structures, etc., on Coleman-Goldbusk Rd.; plans, etc., with W. E. Dickerson, County Engr.

Road Construction.—Rapides Parish Police Jury, J. F. Ball, Prest., Alexandria, La.—Bids until Feb. 8 to clear and grade 9 mi. Glenmora-Westport highway; plans, etc., with Ira Sylvester, Parish Engr.

Road Construction.—Ellis County Commrs., Waxahachie, Tex.—Bids until Jan. 27 to improve roads as follows: Gravel surface 2 3/4 mi. Ennis-Crisp Rd.; 12 mi. Ennis-Italy Rd.; 7 mi. Ennis-Emhouse Rd.; 8 1/2 mi. Ennis-Waxahachie Rd.; plans, etc., with G. G. Edwards, Engr., Ennis National Bank Bldg., Ennis, Tex.

Road Materials.—Virginia State Highway Commn., 116 S. 3d St., Richmond, Va.—Bids until Feb. 4 on following bituminous materials: 196,700 gals. bituminous patch materials; 691,900 gals. bituminous surface-treating material; application of 691,900 gals. bituminous surface treatment in four groups; specifications on file; G. P. Coleman, State Highway Commr.

Roller (Road).—City, H. J. Graeser, City Mgr., Tyler, Tex.—Prices on 10-ton road roller, steam; second-hand.

Roofing, etc.—McEwen Lumber Co., Box 1408, Norfolk, Va.—Metal roofing and framing for 60x120-ft. building.

Roofing.—District Commrs., Room 509 District Bldg., Washington, D. C.—Sealed proposals until Feb. 9 for furnishing and delivering steel roofing f. o. b. cars Lorton, Va.; specifications from Purchasing Officer, 329 District Bldg.

Sawmill Equipment.—Geo. H. Koepf, Ramsey, La.—Sawmill equipment, including 6-in. band saw, No. 6 carriage, edger, drykiln, 2-saw trimmer.

Sawmill Machinery.—Dwight P. Robinson Co., 61 Broadway, New York.—Sawmill mchv.

Sewers.—City of Beeville, Tex.—Bids until Jan. 25 to construct storm sewer on Washington St.; plans, etc., from Roy Fenner, City Engr.

Sewers.—Town, Seward O'Quinn, Mayor, Perry, Fla.—Bids until Feb. 24 to construct 12,500 lin. ft. sanitary sewers with manholes and appurtenances; plans, etc., on file, or with H. S. Jaudon Engineering Co., Engr., Elberton, Ga.

Sewers.—City of Washington, N. C.—Bids until Feb. 19 to construct 19 to 30-in. vitrified pipe storm sewers with trench 6 to 19 ft. deep; P. C. Painter, City Engr.

Sewers.—City Commn., John S. Bond, Chrmn., Jacksonville, Fla.—Bids until Feb. 4 to construct storm and sanitary sewers in 12th St.; 1330 ft. terra-cotta sanitary sewer and 2 manholes; 2370 ft. 12 to 24-in. reinforced concrete pipe; 2400 ft. 8-in. terra-cotta pipe; 90 8x5-in. terra-cotta Y's; 16 cast-iron manhole frames and covers; information with City Engr., Engineer Bldg., Main and Orange Sts.

Steel.—United States Engr. Office, Box 72, Louisville, Ky.—Bids until Feb. 21 to furnish and deliver structural steel, castings, etc., for Lock No. 45, Ohio River; information on application.

Steel (Sheet), etc.—Panama Canal, A. L. Flint, General Purchasing Officer, Washington, D. C.—Bids until Jan. 31 to furnish: Sheet steel, bolts, dies, end mills, jack chain, cast-iron pipe fittings, rubber valves, watt-hour meters, receptacles, copper segments, thermometers, butcher knives, roasting pans, raw-hide leather, scrub brushes, steel wool, paraffin and gate valves. Blank forms and information (Circular 1433) on application to offices of Panama Canal, Asst. Purchasing Agts. at New York, New Orleans, San Francisco; United States Engr. offices throughout country.

Stone.—See Paving Materials.

Stone (Blinder).—See Washington, N. C.

Tables.—A. S. Loewenherz, Prest., Loewenherz Bros., North Broad St., Columbus, Ga.—Tables to attach to wall at one end, similar to those used on pullman cars.

Tank and Tower.—Drexel Furniture Co., Drexel, N. C.—40-ft. tower to support 15,000-gal. capacity tank; prefer wood barrel to steel tank.

Terra-cotta.—Harold Macklin, Winston-Salem, N. C.—Prices on terra-cotta. (See Building Material.)

Textile, etc.—Jagannath S. Gor & Co., Urtarsanda, D. Kalra, India.—To represent mfrs. of hosiery, cutlery and stationery.

Tile.—Harold Macklin, Winston-Salem, N. C.—Prices on hollow tile and promenade tile. (See Building Material.)

Tools.—H. M. Walker, Benford, Tex.—To contract for mfr. of newly patented tool.

Tractor.—City of Columbia, S. C., M. M. Rice in charge.—Bids until Feb. 1 to furnish 5-ton tractor of caterpillar type; f. o. b. Columbia.

Turbo-generator.—Dwight P. Robinson Co., 61 Broadway, New York.—Turbo-generator for sawmill.

Valves.—A. H. Burg, Lakin, Kans.—Prices and specifications on 12 foot valves for 7-in. pipe for irrigation system.

Water-works.—Town, Seward O'Quinn, Mayor, Perry, Fla.—Bids until Feb. 24 to construct 10,000 lin. ft. 6 and 8 in. water mains with valves, valve boxes and specials; plans, etc., on file, or with H. S. Jaudon Engineering Co., Engr., Elberton, Ga.

Water System Equipment.—Merrifield, Lambert & Metz, 322 Cherry St., Helena, Ark.—Prices on pumps, pipe, tanks or special complete water systems for development of 52 lot subdivisions above city level.

Wire, etc.—Panama Canal, A. L. Flint, General Purchasing Officer, Washington, D. C.—Bids until Feb. 4 to furnish: Wire rope and cable; telephone wire; oil; drills; screws; ejectors; receptacle caps; condulets; switches; shackles; pumps; license tags; foundry brushes; boiler lagging; rubber and asbestos gaskets; packings; bituminous enamel; tin; blank books; cardboard; and mimeograph paper. Blank forms and information (Circular 1432) on application to offices of: Panama Canal; Asst. Purchasing Agents at New York, New Orleans and San Francisco; United States Engr. offices throughout country.

Wharf.—Mississippi Warrior Service, 321 Custom-house, New Orleans, La.—Bids until Feb. 16 to reconstruct and improve Sanders Wharf; Theodore Brent, Federal Mgr., War Dept., Inland and Coastwise Waterways Service.

Wiring.—McEwen Lumber Co., Box 1408, Norfolk, Va.—Electric wiring, connections for power and light.

Woodworking Machinery.—J. E. Minter, Box 824, Columbus, Ga.—To correspond with mfrs. of mchv. for turning trays, bowls, broomhandles, etc.

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

Railroad Construction

Fla., Moore Haven.—Moore Haven & Clewiston Railway Co. is authorized by the Interstate Commerce Comm'n to issue \$50,000 of first-mortgage bonds, the proceeds to be used for track construction; John J. O'Brien is Pres.

Tenn., Oneida.—Tennessee Railroad Co. has been authorized by the Interstate Commerce Comm'n, to build a 6-mi. branch line up Beech Fork of New River in Campbell and Anderson counties at an estimated cost of \$204,477, to develop coal and timber lands; J. N. Baker is Gen. Mgr. at Oneida.

Tex., Texas City.—Texas City Terminal Railway Co., capital stock \$500,000, has filed charter to construct, operate and maintain a terminal railway in and near Texas City. Directors are A. S. Peabody and Alexander Smith of Chicago, Ill.; W. T. Armstrong of Galveston, Tex.; H. B. Moore and E. A. Bynum of Texas City.

W. Va., Albright.—Cheat River & Muddy Creek Railroad Co., recently chartered, will build line 7 mi. long from Albright to Englehart's Mills, including four or five bridges. It is stated that the company does not contemplate beginning construction this year unless conditions materially improve. Directors are R. S. La Rue, Pres.; J. C. Gibson, V.-P.; H. T. Lincoln, Sec. and Treas.; Jas. W. Flynn, all of Kingwood, W. Va., also H. G. La Rue, who is chief engineer, Independence, W. Va.

Street Railways.

Tex., Dallas.—Plans and specifications are made by the Dallas Railway Co. for special work necessary for the proposed Seventh St. extension to Oak Cliff. Another line is also proposed on Zang's Blvd. and Eighth St. Other improvements projected by the company complete plans for contemplated expenditures which would total about \$2,000,000 during the next five years. J. F. Strickland is Pres.

INDUSTRIAL NEWS OF INTEREST

Items of news about industrial, railroad or financial interests, building operations, construction work, municipal improvements, or the sale of machinery or the letting of contracts in the South or Southwest, are invited from our readers whether they are advertisers or subscribers or not. We invite information of this character from readers in the North and West about their Southern business operations, as well as from Southern readers. News of value will be published just as readily when from non-advertisers as from advertisers.

Industrial Opportunities in Large Gas Field.

Attention is called to the numerous advantages presented to manufacturers by the Monroe-Bastrop gas field of Louisiana in an advertisement appearing in another column over the name of the Arkansas & Louisiana-Missouri Railway Co., Monroe, La. It is stated that this is the largest of all gas fields known, and it is still being extended. The area is 400 square miles; there are 65 producing wells, and the present daily production is 550,000,000 cubic feet, offering an abundance of most efficient and cheap fuel. Besides, there are 21 more wells being drilled. It is only 50 miles from the oil field of Homer, La., and 75 miles from the oil field of Eldorado, Ark. It is further noted that there is plenty of labor to be employed there.

Sales Manager Appointed.

The Electro Dynamic Co., Bayonne, N. J., announces the appointment of Hugh A. Brown as sales manager, effective January 15. His office is at the Bayonne works, and he has entire charge of the marketing of the company's products, including motors, generators, etc. Mr. Brown has had an extended experience in sales work, having been connected with a number of electrical concerns in selling their products, among them being the Crocker-Wheeler Company and the Burke Electric Co.

Change of Name and Address.

It is announced that the new name and address of Albert Kingsbury, engineer, is now Kingsbury Machine Works, 434-21 Tackawanna St., Frankford, Philadelphia, Pa. The former name and address, viz., "Albert Kingsbury, Engineer, Oliver Bldg., Pittsburgh, Pa.," is discontinued. Mr. Kingsbury will henceforth conduct his business of designing, manufacturing and selling Kingsbury thrust bearings under the new name and at the new address.

Business Change.

Howard H. Marsh, for nearly eight years district manager of the Railway Age and other publications of the Simmons-Boardman Publishing Co. at Cleveland, O., has resigned to become president of the Victory Equipment Co., with office at 444 Maison Blanche

Annex, New Orleans, La., where he will represent the McMyler-Interstate Company of Cleveland; the Ball Engine Co. of Erie and Pittsburgh, Pa.; the Schaefer Equipment Co. of Pittsburgh, and the Equipment Manufacturing Co. of Cleveland. In addition to his other work, Mr. Marsh will represent the Simmons-Boardman Publishing Co. in Southwestern territory.

Competition for Safety Trophy.

As a stimulus to the safety movement in its plants, the Carnegie Steel Co. has placed the safety work on a competitive basis. Its 13 units being competitors for a trophy, and which is a bronze statuette symbolizing safety. It is 26 inches high, 10 inches in diameter through the base, and is the composition of Moretti of Pittsburgh. The competition began January 1, and the prize is to be awarded monthly to the plant making the best record for safety, and the best percentage in a ranking report, based on the least number of accidents that cost loss of time, in proportion to men employed. As each plant wins the trophy it will hold it for the month, and the name of the plant is to be inscribed on the base, with the month for which it was awarded, and at the end of the year the plant which wins the trophy the greatest number of months becomes its perpetual holder. The statuette portrays grace, strength and power, and the dominating thought in its creation was that of production with safety. This thought is given expression in the figure of a young, vigorous, perfect man, indicating well-balanced control. He holds the world in his hand.

Trade Literature.

Calendars.

A remarkably fine and large wall calendar has been issued by the Aldrich Pump Co., Allentown, Pa.; each of the monthly pages being illustrated with a picture of some of the company's products and each having a differently colored border, although the figures are always black and three months to a page for convenient reference. McEntie-Marshall Company, Pittsburgh, Pa., have a fine hanger calendar, three months to a page and printed

in black and green, each page carrying a different illustration, showing one of the numerous buildings or bridges erected by this organization. Riter-Conley Company, also of Pittsburgh, have a calendar of exactly the same kind, each page with an illustration of some of the jobs of steel-plate construction done by the company. Texas Portland Cement Co. of Dallas and Houston have issued a wall calendar with very large figures for the current months, but with the preceding and the succeeding months (for reference) in smaller type. It is printed in red and black. Legal holidays and important historical facts are noted. The Long & Allstatter Company (American Punch & Shear Works) Hamilton, O., are represented by an excellent and tasteful hanger calendar, having an artistic border, and each of the monthly pages carrying an illustration of one of the company's different machines.

Transveyors in Industries.

The Cowan Truck Co., Holyoke, Mass., has issued a large bulletin which it calls "Transveyor Picture Book," that is published to show the work which the Cowan transveyors are doing in varied lines of industry. It is claimed that with a transveyor one man does the work of four or five men operating under the old methods. This device applied to industry, it is asserted, means the saving of time, cutting cost of handling material, effecting installation economy, speeding up production, avoiding plant congestion and stimulating general activity in a plant. There are a large number of pictures showing how the transveyor is used, and there is a double-page illustration with complete description.

Financial News

New Financial Corporations.

Fla., Coconut Grove.—Coconut Grove Realty Co., capital \$10,000, organized with R. B. Burdine, Pres.-Treas.; E. W. F. Stirrup, V.-P.; J. R. Logan, Treas.

Fla., St. Petersburg.—Title Holding Co., capital \$25,000, organized with W. D. McAdoo, Pres.; John E. Burket, V.-P.; C. La. Snyder, Secy.-Treas.

Fla., Tampa.—Falk Trading Co., capital \$250,000, organized with C. Falk, Pres.; David A. Falk, Secy.; Emma Falk, Treas.

Ga., Dublin.—First National Bank, consolidation of Dublin and Laurens Bank and First National Bank, organized with resources of \$6,000,000.

Ga., Macon.—Citizen's Industrial Loan Corp., capital \$100,000, organized with M. E. Elliott, Pres.; Louis M. Rossignol, V.-P.

Md., Baltimore.—Jewish Building and Loan Assn., 2903 Brighton St., capital \$200,000, incorporated with Martin J. Quigley, Elsie Bloom, Oscar Smolian.

Md., Baltimore.—Keech & Gorman, 246 Equitable Bldg., capital \$10,000, incptd. with James K. Keech, Edward A. Gorman, Charles R. Evans.

Md., Crisfield.—Woodlawn Development Co., capital \$15,000, incptd. with F. Douglas Sears, Egbert L. Quinn, John B. Robins.

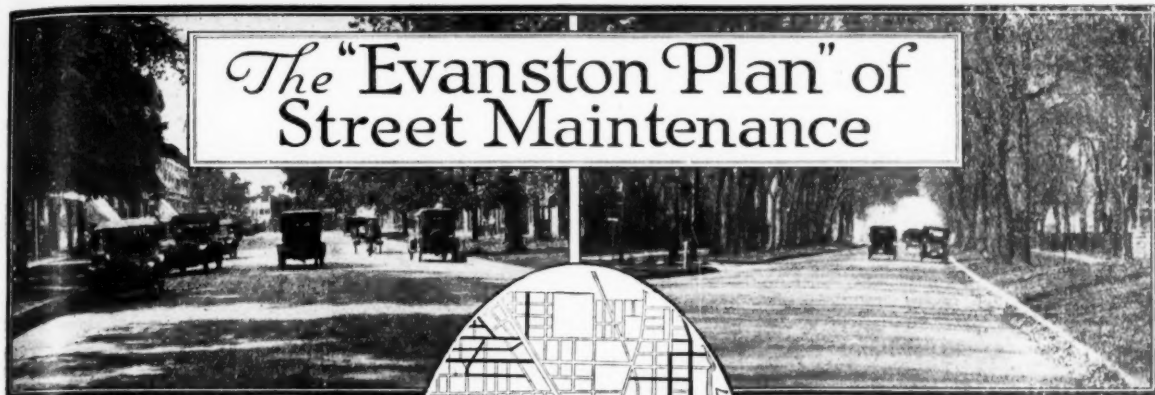
Md., Hagerstown.—Hagerstown Camp No. 1, Woodmen of the World Building Assn., 50 W. Antietam St., capital \$100,000, incptd. with Chas. H. Bowers, Marx W. Miller, John W. Rohrer.

Md., Shady Side.—Cedarhurst Realty Co.,

(Continued on Page 138)

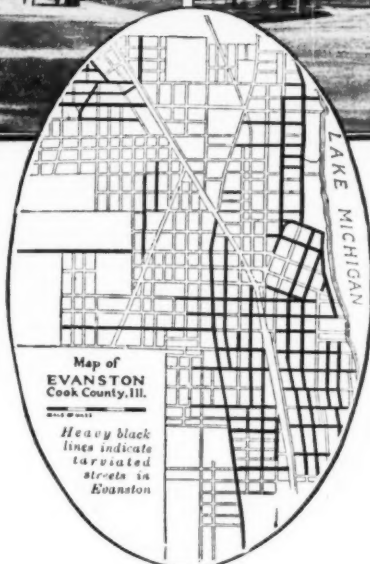
In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

The "Evanston Plan" of Street Maintenance



Orrington Ave., Evanston, Ill. Old waterbound macadam surfaced with "Tarvia-A" June, 1919.

Sheridan Road, Evanston, Ill. One of the Improvement Association Streets, constructed with "Tarvia-A" in 1912-1916.



WITH natural pride in their beautiful city, which lies just north of Chicago, the property owners and city authorities of Evanston, Ill., have worked out what has come to be known as the "Evanston Plan" for keeping their macadam streets in first-class condition.

The property owners on many streets have local Improvement Associations, who voluntarily contribute to the cost of maintenance of their street. This fund was formerly used for street sprinkling, but is now being used in systematic Tarvia maintenance. The work is handled by the street department under the direction of the Commissioner of Streets. This has worked out so satisfactorily that some of the Associations have a surplus in their treasury, where formerly all the funds went into street sprinkling, and the streets are dustproof, waterproof and automobile proof.

Keeping Ahead of Old General Neglect

The policy of the City of Evanston is to repair and re-treat the streets *before it is absolutely necessary*. Three patrol gangs are kept on the streets all summer, immediately

patching any spot in the macadam that begins to show signs of wear. As a result, the entire system of more than a half million square yards of Tarvia-treated macadam pavement is kept in wonderful condition all the year round.

In fact, the streets of Evanston form a striking testimonial to the efficiency of systematic Tarvia treatment and low cost maintenance.

The Efficiency of Barrett Service

The present Commissioner of Streets, Mr. R. M. Brown, writes as follows:

"Efficiency of service by your company in the delivery and

application of Tarvia to the City of Evanston during the past season has been very satisfactory.

"I assure you that your efforts in our behalf are appreciated, as we are able to keep our pavements in good serviceable condition despite the fact that they are subjected to unusually heavy traffic."

Property Owners Prefer Tarvia

Former Commissioner of Streets Mr. Walter W. Krafts, before leaving office, wrote as follows:

"The people of Evanston are satisfied in every respect, and in asking for work to be done on streets, are asking for Tarvia in preference to other binders."

The Evanston plan of street maintenance is attracting a great deal of attention in other municipalities.

We should be very glad to explain this plan in greater detail to any interested city official or property owner upon request. In writing, address the nearest Barrett Company office.

Tarvia

Preserves Roads-Prevents Dust

Meet us in Chicago at the American Road Builders' Association Convention during the week of February 7.

THE BARRETT COMPANY, Limited: New York, Detroit, Salt Lake City, Johnson, Elizabeth, Montreal, Chicago, New Orleans, Seattle, Lebanon, Buffalo, Philadelphia, Birmingham, Peoria, Youngstown, Baltimore, Toronto, Boston, Kansas City, Atlanta, Toledo, Omaha, Winnipeg, Vancouver, St. John, N. B., St. Louis, Minneapolis, Duluth, Columbus, Jacksonville, Cleveland, Dallas, Milwaukee, Richmond, Houston, Halifax, N. S., Cincinnati, Nashville, Denver, Pittsburgh, Syracuse, Washington, Bethlehem.

capital \$5000, ineptd. with Richard C. Ellis, Willard P. Coleman, Harry Mohler.

Mo., Cardwell.—First National Bank, capital \$50,000, organized with Luther Walker, Prest.; Sam. G. Fisher, Cashr.

Okla., Mangum.—Covington Bros. Farm Loan & Investment Co., capital \$200,000 organized with D. F. Covington, Prest.; W. A. Covington, Secy.; both Mangum; W. P. Hauck, V.-P., Jester, Okla. (Supersedes recent item.)

N. C., Asheboro.—Asheboro Bank & Trust Co., organized with H. T. Caveness, Prest.; E. H. Morris, Cashr.

N. C., Greensboro.—Farmers and Mechanics Bank & Trust Co., organized with J. P. Sanders, Prest.; C. J. Tinsley, V.-P.; S. A. Caveness, 2d V.-P.

Okla., Cyril.—First National Bank, capital \$25,000, ineptd.

Okla., Tulsa.—American Investment & Building Co., capital \$100,000; organized with H. W. Johnson, Prest.; Willard John, V.-P.; Frank C. Thompson, Secy.-Treas. (Supersedes recent item.)

Okla., Wanette.—Security State Bank, consolidation of Security State Bank and State National Bank, capital \$50,000 and resources \$500,000, organized.

S. C., Orangeburg.—Orangeburg National Bank, consolidation of Orangeburg and Peoples National Bank, organized with D. O. Herbert, Prest.; R. E. Bryant, V.-P.; J. W. Culler, Cashr.

Tenn., Nashville.—American National Bank of Nashville, consolidation of American National Bank of Nashville, Tenn., and Cumberland Valley National Bank of Nashville, capital \$1,500,000, organized.

Tenn., Telford.—Bank of Telford, capital \$20,000, organized with W. A. Maloney, Prest.; I. A. Campbell, V.-P.; Fred. H. Wagner, Cashr.

Tex., Maxwell.—State Bank, capital \$25,000, organized with A. L. Eckhart, Cashr.

Tex., Venus.—Farmers and Merchants Bank of Venus, consolidation of First National Bank and Farmers and Merchants Bank of Venus, organized with B. C. Kelley, Prest.; Tom W. Hines, V.-P.; Z. V. Barker, Cashr.

Tex., Wichita Falls.—Wichita Falls Insurance Exchange Co. has organized.

Tex., Wichita Falls.—American Investment Co., capital \$550,000, ineptd. with W. H. Bonner, F. L. McCoy, R. S. Nixon.

Va., Lynchburg.—Lynchburg National Bank, consolidation of Lynchburg National Bank and United Loan & Trust Co., capital and surplus \$2,000,000; combined resources \$12,000,000; deposits \$6,000,000.

Va., Norfolk.—South Norfolk Bank, capital \$100,000, organized.

Va., Roanoke.—Guarantee Finance Co., capital \$300,000, organized with J. T. Bandy, Prest.; Kenneth C. Patty, Secy.

W. Va., Charleston.—Charleston Building and Loan Assn., capital \$300,000, ineptd. with Isaac Lowenstein, R. G. Hubbard, W. B. Mathews.

W. Va., Charleston.—City Investment Co., capital \$200,000, ineptd. with S. P. Smith, E. H. McNeil, Thomas A. Beury.

W. Va., Welch.—McDowell Insurance Agency, capital \$25,000, ineptd. with S. C. Harmon, John A. Wilson, V. L. Wetherby.

New Securities.

Ala., Dothan.—City, R. W. Lisenby, Clk., will vote Feb. 14 on \$750,000 of 6 per cent semi-annual 20-year bonds. (Lately noted.)

Ala., Bessemer.—Water.—City, B. C. Jones, Mayor, defeated \$675,000 bond issue. (Lately noted to vote.)

Ala., Fayette.—Drainage.—Fayette-Lamar

Drainage Dist. County Commrs. will issue bonds.

Ala., North Birmingham.—Masonic Temple. City will sell \$500,000 of 6 per cent \$50, \$100 and \$500 denomination short-term gold bonds. Address The Mayor.

Ark., Bentonville.—Road.—Stern Bros. & Co., Kansas City, Mo., are offering to investors \$185,000 of 6 per cent serial \$500 and \$1000 denomination bonds of Benton County Road Improvement Dist. No. 6.

Ark., Little Rock.—Road.—North Little Rock and Galloway Road Dist. Commrs. filed petition for permission to issue \$275,000 bonds.

Fla., Jacksonville.—Docks, Sewer, Water and Paving.—City Comsn., John S. Bond, Chrmn., will vote Mar. 1 on two bond issues, one a positive issue for \$1,200,000, and other tentative issue for \$800,000 divided as follows: first \$1,200,000, municipal docks \$600,000, \$400,000 sewer, \$100,000 watermain, \$100,000 paving; second \$800,000, \$400,000 municipal docks, \$150,000 sewer, \$100,000 watermain, \$150,000 paving. (Lately noted contemplating.)

Fla., Miami.—School.—Dade County Board of Education, H. H. Filer, Chrmn., will issue \$300,000 bonds.

Fla., Miami Beach.—Water and Fire Department.—City, S. W. Tomlinson, Clk., did not receive any bids on \$25,000 fire department and \$50,000 water bonds; Council authorized private sale; 6 per cent \$1000 denomination 18-year, dated Jan. 1. (Lately noted inviting bids.)

Fla., Perry.—Street, Water, Sewer and Drainage.—City, Aulay McAulay, City Clk. will receive bids until Feb. 23 on \$110,000 of 5 and 6 per cent bonds including \$25,000 of 5 per cent 30 yr. street improvement bonds of 1917, \$20,000 30-yr. 5 per cent water and sewer bonds of 1917, \$25,000 of 6 per cent serial street improvement bonds of 1920, \$25,000 of 6 per cent serial water and sewer bonds of 1920, \$15,000 of 6 per cent serial drainage bonds of 1920.

Fla., Tampa.—School.—School Trustees Special Tax Dist. No. 4 plans voting on \$350,000 bonds.

Ga., Blackshear.—Road and School.—Pierce County Commrs., S. F. Memory, County Attorney, will receive bids until Feb. 8 on \$48,000 of 5 per cent school bonds to mature \$2000 Jan. 1, 1922; \$4000 Jan. 1 in each of years 1923 and 1924; \$6000 Jan. 1 in each of years 1925 and 1926; \$8000 Jan. 1 in each of years 1927 and 1928, and \$10,000 Jan. 1, 1929; \$30,000 of 5 per cent road bonds to mature \$1000 Jan. 1 in each of years 1930 to 1939, both inclusive, and \$2000 Jan. 1 in each of years 1940 to 1949, both inclusive; \$80,000 of 5 per cent road bonds to mature \$3000 Jan. 1 in each of years 1930 to 1939, both inclusive, and \$5000 Jan. 1 in each of years 1940 to 1949, both inclusive; all semi-annual, dated Jan. 1, 1920.

Ga., Columbus.—School and Street.—City, Chrmn. Finance Committee, will receive bids until Feb. 9 on \$300,000 of 5 per cent semi-annual 15-year bonds, including \$150,000 school and \$150,000 street.

Ga., Cedartown.—Road.—Polk County Commissioners will issue \$500,000 bonds.

Ga., Kirkwood.—School.—Town, O. O. Ray, Clk., will invite bids until Feb. 8 on \$50,000 of 6 per cent \$1000 denomination bonds, dated Jan. 1, due \$2000 Jan. 1, 1927; \$2000 each year until Jan. 1, 1951. (Lately noted voting bonds.)

Ga., Leesburg.—School.—Lee County Board of Education, S. J. Powell, County Supt., will receive bids until Feb. 25 on \$125,000 of 5 per cent bonds, including \$65,000 Leesburg School Dist., 5 per cent, semi-annual, \$1000 denomination, 25-year bonds, and \$60,000 Smithville School Dist. 5 per cent, semi-annual, 25-year bonds.

Ga., Rome.—School.—City, Isaac May, Chrmn., rejected bids on \$100,000 of 5 per cent bonds offered on Jan. 6. (Lately noted inviting bids.)

Ky., Covington.—Water.—City, Geo. C. Stahel, Commr. Public Finance, will receive bids until Jan. 27 on \$250,000 of 6 per cent semi-annual 22½-year water bonds.

La., St. Martinville.—Road.—St. Martin Parish Police Jury, R. J. Bienvenu, Prest., will receive bids until Mch. 7 on \$300,000 of Road Dist. No. 1 bonds.

La., Monroe.—Road.—Ouachita Parish Police Jury, W. A. O'Kelly, Clk., received bid of Caldwell & Co., Nashville, Tenn., on \$1,600,000 bonds of Road Dist. No. 1. (Supersedes recent item.)

La., Shreveport.—Street, Sewer, Park, Jail, Fire Station, etc.—City, L. F. Clawson, City Commr., contemplates selling \$1,200,000 bonds in February, including \$100,000 on \$500 street, \$100,000 storm sewer, \$250,000 park, \$250,000 library, \$200,000 jail, \$255,000 fire station bonds; these bonds were voted in September. (Lately noted.)

Md., Hagerstown.—Sewer.—City, Wm. Logan, Tax Collector, sold \$140,000 of 5 per cent semi-annual 9½-year sewer bonds to Robert Garrett & Sons and Baltimore Trust Co.; both Baltimore. (Lately noted inviting bids.)

Miss., Jackson.—School.—State Bond & Improvement Comsn. sold \$500,000 of \$5,000,000 State bond issue, to M. R. Grant & Co., Chicago, Ill. at premium of \$2700. (Lately noted inviting bids.)

Miss., Pascagoula.—Street and Wharf.—City will vote on \$35,000 bonds, including \$20,000 street and \$15,000 wharf bonds. Address The Mayor.

Mo., Carthage.—Road.—Avilla Special Road Dist. sold \$30,000 of 6 per cent semi-annual \$1000 denomination bonds, dated Dec. 1, to Stern Bros. & Co., Kansas City, Mo.

Mo., Caruthersville.—Drainage.—Kaufman, Smith, Emery & Co., St. Louis, are offering to investors \$50,000 of 6 per cent semi-annual \$1000 denomination bonds, dated July 1, 1918.

Mo., Gainesville.—School.—Gainesville School Dist. sold \$16,500 of 6 per cent semi-annual bonds, dated Nov. 20, denominations 16 for \$1000 and 1 for \$500, to Stern Bros. & Co., Kansas City, Mo.

Mo., Oregon.—Drainage.—Big Tarkio Drainage Dist. sold \$25,000 of 6 per cent semi-annual \$500 denomination bonds, dated Dec. 1, to Wm. R. Compton Co., St. Louis.

N. C., Asheville.—School.—City, Gallatin Roberts, Mayor, will vote in Feb. or Mch. on \$550,000 bonds.

N. C., Fairmont.—School.—Fairmont Graded School Dist., F. L. Blue, Chrmn., will receive bids until Feb. 22 on \$60,000 to \$100,000 of 6 per cent 30-year bonds.

N. C., Greenville.—School.—Pitt county, Farmville Township Special Aax School Dist. sold \$40,000 of 6 per cent bonds to Sidney Spitzer & Co., Toledo, O.

N. C., Greensboro.—School.—City Commrs. voted \$1,000,000 bonds. (Lately noted to vote.)

N. C., Hertford.—Road and Bridge.—Perquimans County Commrs., C. W. Morgan, Chrmn., will receive bids until Feb. 17 on \$300,000 of 6 per cent semi-annual \$1000 denomination 33-year bonds, dated Feb. 1.

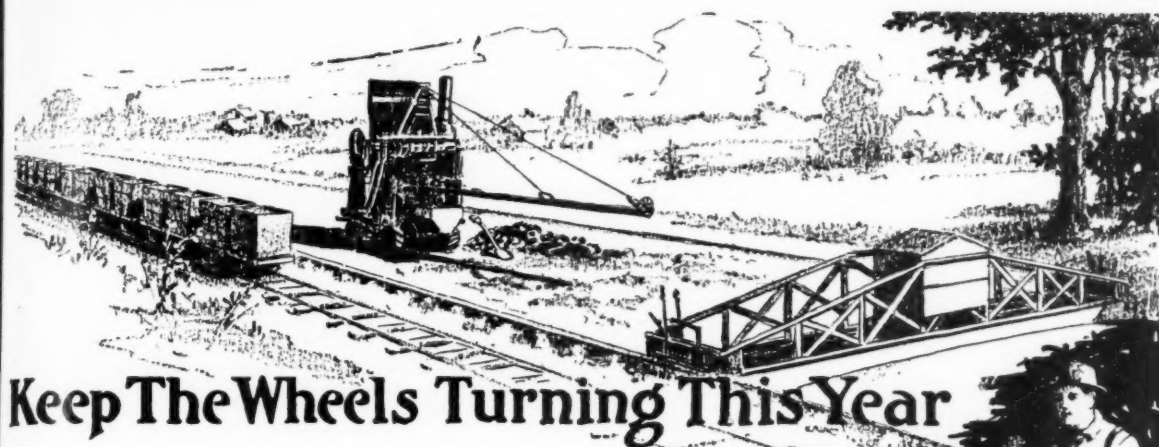
N. C., High Point.—School.—Board of Education, Wm. Marr, Supt., voted \$600,000 bonds of High Point Township.

N. C., Hillsboro.—School.—Orange County Board of Education, J. R. Claytor, Clk., will receive bids until Feb. 7 on \$25,000 Carboro

(Continued on Page 140)

In writing to parties mentioned in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

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Keep The Wheels Turning This Year

Lack of Materials Stopped a Great Deal of Construction in 1920—Here's a Way to Avoid Last Year's Trouble



THE "neck of the bottle," last year on general construction and road work was the ability of the railroads to deliver cement, sand, stone, etc., when needed.

Last year the "neck" got pretty badly corked up.

It's going to be pretty much the same next year in many localities.

But there seems to be a way out—that's to haul materials to the job in the season when most open top cars are available. And that time is during the winter and early spring.

Having large stock piles will insure starting

work *on time* next year and being able to keep the job going *steadily*.

Of course this method has to be financed. But the certainty of *continuous* operation will more than offset any slight extra cost.

Have you talked this over with the people you're doing the work for? Your banker would be willing to help too, in most cases. In many cases a method of financing the purchase of material *now* can be worked out to the advantage of all concerned.

It means better satisfaction all around—and certainly it is to *your* advantage. Why not talk it over—*seriously*?



NEW YORK CITY
 BOSTON
 PHILADELPHIA

RICHMOND
 MEMPHIS
 ATLANTA
 DALLAS

HOUSTON
 MILWAUKEE
 CHICAGO
 ST. LOUIS

WRITE THE NEAREST OFFICE
 INDIANAPOLIS
 MINNEAPOLIS
 DES MOINES
 PITTSBURGH

CLEVELAND
 BUFFALO
 DETROIT
 KANSAS CITY

SAN FRANCISCO
 LOS ANGELES
 PORTLAND
 SEATTLE

EXPORT-ALLIED MACHINERY CO OF AMERICA, N.Y. CITY

Lakewood

Methods and Machines

THE LAKEWOOD ENGINEERING COMPANY, CLEVELAND, U. S. A.

School Dist. bonds; 6 per cent semi-annual \$1000 denomination bonds, \$1000, due 1921 to 1935, both inclusive and \$2,444, 1936 to 1940, both inclusive.

N. C., Mooresville—School.—Mooresville Graded School Dist. Trustees, A. W. Colson, Secy.-Treas., will receive bids until Feb. 5 on \$50,000 of 6 per cent semi-annual \$1000 denomination bonds, dated Jan. 1.

N. C., Newbern—School.—City, F. T. Patterson, City Clk., will receive bids until Feb. 1 on \$150,000 of 6 per cent semi-annual 40-year bonds.

N. C., Newton—Fire Equipment, Water and Light.—Town, D. B. Gaither, Clk., rejected bids on \$11,000 fire truck and equipment and \$14,000 water, light and power bonds. (Lately noted inviting bids.)

N. C., Reidsville—Water.—City, J. F. Smith, City Treas., will receive bids until Feb. 2 on \$100,000 water bonds; 6 per cent 39-year bonds, dated Feb. 1.

N. C., Snow Hill—School.—Board of Education of Greene County, B. C. Williams, Clk., will receive bids until Feb. 21 on \$50,000 of 6 per cent Snow Hill School Dist. bonds; \$1000 denomination; 30-year; dated Jan. 1; also, \$9000 of 6 per cent Snow Hill School Dist. bonds; \$1000 denomination; 19-year; dated Jan. 1.

N. C., Wilmington—Improvement.—City, Thos. D. Meares, Clk. and Treas., will receive bids until Feb. 3 on \$150,000 of semi-annual serial bonds, dated Jan. 1, 1921, payable \$3000 on each Jan. 1, commencing Jan. 1, 1922, until Jan. 1, 1955, inclusive; \$6000 on each Jan. 1, commencing Jan. 1, 1940, until Jan. 1, 1955, inclusive.

N. C., Winston-Salem.—Forsyth County Commrs. plan voting on \$2,000,000 bonds.

Okl., Hugo—Bridge.—Choctaw County Commissioners sold \$15,000 bridge bonds to R. J. Edwards, Oklahoma City.

Okl., Vinita—Water.—City will issue \$225,000 bonds. Address The Mayor. (Lately noted voting \$160,000 bonds.)

S. C., Blacksburg—Water and Sewer.—City, N. W. Horden, Mayor, will vote Mch. 20 on bonds.

S. C., Gaffney—Funding.—Cherokee County Commrs., W. H. Ross, Clk., sold \$100,000 of 6 per cent semi-annual 4½-year bonds to A. B. Leach & Co., New York, for par and accrued interest. (Lately noted inviting bids.)

S. C., Orangeburg—Bridge.—Orangeburg County Bridge Comsn., Julian S. Wolfe, Secy., sold \$100,000 of 6 per cent serial \$1000 denomination bonds to Planters Bank of Orangeburg. (Supersedes recent item.)

S. C., Spartanburg—School.—City; School Board did not receive bids on \$300,000 school bonds. (Lately noted inviting bids.)

Tenn., Clarksville—Street Equipment.—City will issue \$35,000 of 6 per cent semi-annual 20-year bonds, dated April 1, 1921. Address The Mayor.

Tenn., Knoxville—Street.—City, John L. Greer, Recorder, will receive bids until Feb. 1 on \$155,000 of 5 and 6 per cent street bonds. (Lately noted.)

Tenn., Memphis—Jail.—Shelby County Court plans voting on \$500,000 bonds.

Tenn., Rogersville—Sewer and Water.—City sold \$25,000 of \$75,000 bonds offered to Caldwell & Co.

Tex., Abernathy—School.—Abernathy Independent School Dist. registered \$8000 of 6 per cent 20-40-year bonds with State Comptroller.

Tex., Ballinger—Road.—Runnels County Commrs. Road Dist. No. 2 will vote Feb. 26 on \$100,000 bonds. (Lately noted.)

Tex., Beeville—School.—Bee County Common School Dist. No. 7 issued \$2000 of 5 per cent 10-20-year bonds, dated Jan. 6.

Tex., Big Spring—School.—Big Spring Independent School Dist. registered \$7500 of 5 per cent 10-20-year bonds.

Tex., Galveston—Paving.—Galveston County Commrs. contemplate \$100,000 bond issue.

Tex., Gonzales—Road.—Gonzales County Commrs. Road Dist. 5 and 8 will receive bids until Feb. 14 on \$104,000 of \$1000 denomination bonds, dated Jan. 1 of Road Dist. No. 5 and \$100,000 of \$1000 denomination bonds, dated Jan. 1, of Road Dist. No. 8.

Tex., Harlingen—Street, Sewer, Water and Light.—City voted \$100,000 bonds, including \$40,000 street and \$60,000 water, sewer and light bonds. Address The Mayor. (Lately noted to vote.)

Tex., Houston—Drainage.—Harris County Drainage Dist. No. 10 will vote Feb. 5 on \$50,000 bonds.

Tex., Marshall—Road.—Harrison County Commrs., W. H. Strength, Judge, sold \$300,000 of 5 per cent semi-annual bonds to L. G. Hamilton for Bolger, Mosser & Williams of Chicago. (Lately noted.)

Tex., Port Lavaca—Road.—Calhoun County, S. L. Marsh, County Judge, will receive bids until Feb. 2 on \$100,000 of 5 per cent \$1800 denomination 30-year bonds. (Lately noted.)

Tex., Ranger—School.—Ranger School Dist. will vote Jan. 22 on \$250,000 bonds.

Tex., Vernon—School.—Wilbarger County Common School Dist. No. 45 issued \$3500 of 5 per cent 5-20-year bonds, dated Jan. 5.

Tex., Wheeler—Bridge.—Wheeler County Commrs. voted \$58,000 bonds.

Va., Martinsville—Street and School.—Town, A. S. Gravely, Clk., will sell \$250,000 of bonds voted Jan. 18, including \$200,000 street and \$50,000 school bonds; 6 per cent; 34 years.

W. Va., Bridgeport—School.—Harrison County Board of Education, Clarksburg, W. Va., plans bond issue.

W. Va., Weston—School.—Board of Education of Dist. of Collins Settlement, G. W. Blair, Secy., will receive bids until Feb. 11 on \$50,000 of 6 per cent \$500 denomination bonds issued in 4 series as follows: Series First, payable July 1, 1925; Series Second, payable July 1, 1930; Series Third, payable July 1, 1935; Series Fourth, payable July 1, 1940.

Financial Notes.

Star State Bank, Star, Tex., increases capital from \$10,000 to \$15,000.

Citizens State Bank, Hinton, Okla., increases capital from \$10,000 to \$15,000.

Liberty National Bank, Tulsa, Okla., increases capital from \$200,000 to \$250,000.

Harrison State Bank, Harrison, Ark., increases capital from \$25,000 to \$100,000.

Dollar Savings Bank, Spartanburg, S. C., increases capital from \$50,000 to \$100,000.

Logan County Bank, Lundale, W. Va., increases capital from \$25,000 to \$50,000.

Jackson County State Bank, Edna, Tex., increases capital from \$60,000 to \$80,000.

Quachita National Bank, Monroe, La., increases capital from \$200,000 to \$600,000.

Citizens and Marine Bank, Newport News, Va., increases capital from \$50,000 to \$100,000.

Southern Exchange Bank, Dublin, Va., increases capital from \$50,000 to \$100,000.

Nashville Savings & Loan Corp., Nashville, Tenn., increases capital from \$60,000 to \$100,000.

New Uln State Bank, New Uln, Tex., increases capital from \$20,000 to \$30,000.

Farmers Bank, Livingston, Tenn., increases capital from \$25,000 to \$50,000.

Security Lease Investment Co., Tulsa, Okla., increases capital from \$10,000 to \$25,000.

First National Bank, Galax, Va., increases capital from \$25,000 to \$50,000.

Employees Building and Loan Assn., Guthrie, Okla., increases capital from \$1,500,000 to \$2,000,000.

W. S. Hicks Loan & Investment Co., Oklahoma City, Okla., increases capital from \$10,000 to \$50,000.

Farmers State Bank, Greentop, Mo., increases capital from \$10,000 to \$50,000, with surplus of \$12,500.

Tulsa Union Loan and Savings Assn., Tulsa, Okla., increases capital from \$2,500,000 to \$5,000,000.

First National Bank, Crewe, Va., increased capital from \$25,000 to \$50,000.

First National Bank, San Antonio, Tex., increased capital from \$25,000 to \$50,000.

Frost National Bank, San Antonio, Tex., increased capital from \$500,000 to \$1,000,000.

Johnson County Bank, Butler, Tenn., increased capital from \$10,000 to \$25,000.

PROPOSALS

Bids close February 23, 1921.

\$45,000 5% Improvement Bonds
\$65,000 6% Improvement Bonds

Perry, Fla. Bids will be received at the office of the City Clerk until 10 A. M. February 23, 1921, for the following bonds of the City of Perry, Florida:

\$25,000 30-year 5 per cent. Street-improvement bonds of 1917.

\$20,000 30-year 5 per cent. Water and Sewer Bonds of 1917.

\$25,000 6 per cent. Serial Street-improvement Bonds of 1920.

\$25,000 6 per cent. Serial Water and Sewer Bonds of 1920.

\$15,000 6 per cent. Serial Drainage Bonds of 1920.

Separate bids must be made for each issue. All bids to be accompanied by a certified check for \$2000, payable to the Town of Perry, Florida.

AULAY McATULAY,
City Clerk.

(Other Proposal Advertisements starting on page 145.)

DIAGRAPH STENCIL- CUTTING MACHINE

To prove that the Diagraph Stencil-Cutting Machine will avoid delay and much of the loss and damage resulting from improper marking of shipments we will gladly send one to you on trial—we pay the freight—buy it if you like it—otherwise return it at our expense.

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